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The Richard Stawell Oration.[1]

SOME BACKGROUNDS IN MEDICINE.

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You have been informed, by the President, of the foundation by Dr. A. E. Rowden White of this annual oration to commemorate his friendship and his admiration for his teacher and colleague, Sir Richard Stawell. Dr. Rowden White desired, moreover, to direct attention year by year to the importance of medical teaching and research. Five orations have already been delivered, the first by Sir Charles Bickerton Blackburn, of Sydney, the second by Sir Thomas Dunhill, formerly of Melbourne, now of London, the third by Dr. C. T. C. de Crespigny, formerly of Melbourne, now of Adelaide, the fourth by Dr. Charles Kellaway, of Melbourne, and the fifth by Professor W. A. Osborne, of Melbourne. It is an honour to join such a distinguished group of predecessors and to help to further the purpose of the founder. The bust of Sir Richard Stawell which stands upon the table has been prepared by the sculptor Mr. W. Leslie Bowles, well known as having been responsible, and to be responsible, for important works in the Commonwealth. Since the last oration the Royal Australasian College of Physicians has been inaugurated and its building in Sydney opened. The principal room or hall, named in honour of Sir Richard "The Stawell Hall", contains a handsome bronze plaque erected through the munificence of Sir Charles Blackburn, the President, and the work of Mr. Bowles. From the materials in his hands the sculptor has now executed this bust and has very kindly brought and arranged it tonight.

[1] Delivered at a meeting of the Victorian Branch of the British Medical Association on October 4, 1939.

For this we extend our warm thanks. You will have the opportunity afterwards of inspecting more closely the lifelike portrayal of our friend. It is a fine achievement in posthumous reconstruction, rendered possible by the aid and suggestion of Dr. Julian Smith, who, from his exact personal knowledge and from his photographs, has been able to supply the sculptor with much of the information requisite for the production of such a work.

It is my intention tonight to speak first of the Stawell background and then of some of the backgrounds of medicine, with the idea of indicating the influence that the master in medicine may exert in the world. Of particular importance for this purpose is the medicine of ancient Greece. Some brief reference will be made to Egypt, which had an influence upon Greek medicine. A glimpse will be given of a medical problem of classical time, the great plague at Athens.

In the first oration Sir Charles Blackburn included a most interesting account of the Stawell family. It is, however, possible to bring before you some points from a source not widely known. By the courtesy of Lady Stawell and of Mr. H. S. Black I have had the pleasure of perusing that very delightful book of memories written for her grandchildren by Sir Richard's mother when advanced in age. Much of the contents of this work is of too intimate a character for public reference, but the general impression created is of a free, jolly, wholesome family life, which communicates its charm to the reader. A high adventure it must have been for her father, Mr. W. Pomeroy Greene, to leave Ireland in the patriarchal manner. It was in 1842 that he chartered the sailing ship *Sarah*, of 500 tons. Between the chartering and sailing she was deprived of her classification as A1 at Lloyd's. This was a cause of anxiety. The vessel is said to have been lost on the return voyage. The party consisted of himself, his wife, six sons and one daughter, butler, governess, head groom, second groom, carpenter and family, herd, and useful boy, gardener and wife (laundress), man cook and wife (housemaid), nurse, two young men friends under Mr. Greene's care. He brought two thoroughbred horses, a cow, and materials for a house. With the party travelled William Foster Stawell, then twenty-seven years of age. He had been at the Irish bar, but, as he said, when he saw forty hats on the Munster circuit and work for only twenty, he decided to go to Australia. After several months' voyaging they arrived in Melbourne. Mr. Greene soon erected a large home, "Woodlands", still to be seen some fourteen miles out on the Mount Alexander Road. The family life there is delightfully pictured in those papers. It was a time of hard work, but also of sport, of hunting and racing. There is included in the volume an account of the Woodlands Steeplechase, by Rolfe Boldrewood, a fine piece of bright, lively and vigorous writing. The place was a centre for all manner of good wholesome country life and activity. There the future Lady Stawell was reared to womanhood and marriage to William Foster Stawell, who rode to hounds and took part in country sports. From this work you catch the tingle of excitement of colonial life at the time. William Foster Stawell was at the very highest stage of his energy. Entering politics, he took a leading part, as Sir Charles Blackburn has set out, in securing the separation of Victoria from New South Wales and in determining the lines of constitutional development in the new colony. One incident will serve to illustrate his energy. It happened that he required to possess a property qualification of £2,000 in order to hold the seat in Parliament which he wished to contest. Being too busily engaged at the bar to seek this property until the very last day, he said to his wife: "You must be up at cock-crow tomorrow morning and we shall drive around and buy a place, but I must be in court by ten o'clock." They drove around and inspected four places without success, then, crossing the river by punt, reached a place on rising ground, with a fine view. This property he at once bought. There they built their home, "d'Estaville", and reared their family. In similar fashion, in his public activities, we can see the man of action as he was described by *Punch*: "Stawell strong and bold, choleric, impetuous, ill inclined to brook control or guidance, hating crooked ways." There was need for hard and strenuous work, unremitting zeal, and swiftness and decisiveness of action in times of civil commotion when he had to control turbulent sections of the community. As prosecutor and justice he had official contact with bushrangers and other lawless characters. He was accustomed at certain times to go on circuit as a judge, riding on horseback with one trooper as escort. Such was his joy in riding that he would frequently outdistance his escort. A bushranger whom he had convicted and who desired revenge prepared to attack the judge at a turn of the road, knowing that he must pass that way. The bushranger, hearing the clatter of the roofs of only one horse, prepared to challenge the oncoming judge. At a later date, being in custody, speaking of this incident, he said: "As the judge rounded the corner I saw him catch my eye and he just said 'Good morning, Power', and rode on. I could not shoot him, he was so brave."

Pervading these pages, too, is the delightful personality of the mother, intellectual, devoted to her family, unsparing of herself. It is very clear that in that one of their illustrious family specially commemorated tonight a blending of these two characters was preserved. In his more placid vocation he yet lived a life of eager scientific adventure with courage, devotion and charm.

Before I consider Greece some reference must be made to ancient Egypt. In Egypt there was a temple medicine. The doctors were of a sacerdotal order. Dreams were studied and interpreted, prayers and incantations were much in use. Hence was exercised a considerable influence upon Greece and upon other parts of the ancient world. Herodotus speaks of the Egyptian physicians. Each physician treated a single disorder and no more; thus the country swarmed with medical practitioners, some under-

taking to cure diseases of the eyes, others of the teeth, others of the head, others of the intestines, and others those diseases which were not local. He discusses with much interesting detail the art of the embalmers, who, in their handling of the dead, would thus attain some knowledge of anatomy. Three forms of embalming are described at length, one simple and cheap, the others more elaborate and costly. There were, however, many other grades. I had the opportunity of noting that in certain mummies at Cairo the several organs had been carefully wrapped separately in linen impregnated with aromatics and packed into the body cavities. It is certain that the high level of attainment in this art, which involved the scientific treatment of the human body and its parts, was of great importance in initiating and developing the study of anatomy and of pathology.

Imhotep is believed to have lived about 3000 B.C., being the chief minister of a certain Pharaoh (Zoser). The stepped pyramid of Sakkhara is said to have been erected by or for him. This was the most ancient pyramid of Egypt. Imhotep is credited also with the design for the temple of Edfu, which some of us have seen. Thus these legends are linked with something that remains today. Later, around Imhotep were gathered the tradition of wisdom and of the power of curing the sick. A shrine was built on the island of Philæ. He came to be regarded as the god of healing. He became identified with Asklepios of the Greeks and with Æsculapius of the Romans. The Greeks of later times used to apply to him a compound name Immuthes-Asklepios. From early times the Egyptians were in much demand as practitioners of medicine in many countries. Thus they reached Greece. Later Greeks studied medicine in Egypt. Later still Alexandria was to rise and become the intellectual and medical centre of the world.

It is difficult to obtain or to convey a notion of the medicine of Greece. Of the Periclean period most is known. This was probably the most highly developed intellectual period in the history of the human race. Æschylus, Sophocles and Euripides, Herodotus, Thucydides, Xenophon, Socrates, Plato, Phidias, Praxiteles, Aristophanes, Miltiades, Pericles, all fell within the space of not much more than one generation. Of the same period was Hippocrates, the Father of Medicine.

It might be thought a task of only moderate difficulty to select passages of Greek literature and to gather a fair idea of the medical ideas latent in current thought at the time; but much search of classical literature yielded little to my efforts. However, by the courtesy of Dr. L. Cowlishaw, of Sydney, an assiduous collector and student of ancient books, particularly those relating to medicine, I have been able to consult several rare works bearing upon this subject. For this valuable assistance I acknowledge obligation to the writers and to the owner.

A book on the medical profession in ancient times by Dr. John Watson, surgeon to the New York Hospital in 1856, presents a scholarly account of the origins of medicine and medical thought in antiquity. He shows that in pre-Periclean Greece physicians were prepared to treat acute disease chiefly by diet and simple remedies; epidemic disease they regarded as a visitation from the gods, so they made no effort to cope with that. Chronic disease they did not venture at that time to attack. I shall be able to tell you, perhaps, where they started to do so; but it seems undoubted that in the pre-Periclean period it was not customary to treat a person with chronic disease at all; persons who contracted chronic disease died, and it was impious to attempt to cope with it. An extraordinary fact is stated by Dr. Watson, that practitioners of the time had to possess sufficient familiarity with such disease to recognize it in those who were sold as slaves; if the slave were a poor slave and in bad health, he would be a bad investment.

The origins of medicine in those early times were the gymnasia, schools of philosophy and the temples. All those agencies were at work side by side. To the gymnasia the youth went at six or seven years of age and remained until about the twentieth year. They were trained in those studies which would promote intellectual and moral development and also would help physical development. They were trained in the laws of health, they were encouraged to engage in active strenuous exercises and tests; incidental to the wrestling and other tests in the palæstræ there would be a certain number of accidents and a certain amount of empirical experience would be gained by those in attendance as instructors. A certain amount of medicine was practised in that way.

As to the schools of philosophy, it is very interesting to think of those in an age when no more could be seen than the unaided senses could detect, when chemistry was unknown, when the body itself could not be dissected, knowledge of anatomy therefore being minimal. What more natural than that those active intellects should chiefly concern themselves with speculation, with abstract ideas in the nature of virtue, the nature of beauty, of justice and so forth? Young men in large numbers attended the schools of those philosophers. Medicine was treated as part of general knowledge, and the students received a certain amount of instruction, and a certain amount of medical practice was associated with it. Pythagoras, driven from Samos, founded a school in Crotona. Young men joined him to be educated in philosophy, including consideration of religion and of medicine. There is an interesting description by Alfred Noyes:

> In the bright marble, under the sandalled feet
> And in the glowing columns as they passed
> The reflex of their flowing vestments glowed
> White, violet, saffron like another dawn.

And so they go to their lectures and their acquisition of knowledge. Pythagoras instructs them in number, to him the dominating principle of Nature. He studies vibrations of strings and discovers their mathematical relation to different sounds. He

discovers that the square of the hypotenuse of a right-angled triangle is equal to the sum of the squares of the other two sides, and in his delight at the solution offers a great sacrifice to the gods, showing the intermixture of religion with philosophy; but after a time the populace revolts against them, crying: "Death to Pythagoras! Death to those who know!" The forces of ignorance are massed against knowledge, the school is broken down, Pythagoras and some of his followers are killed and dispersion takes place, so that from other parts of Greece stream out men charged with ideas, to become exponents of knowledge, and in great or less degree to practise medicine. Of special note among these is Democedes, who is stated to have been the first to adopt medical practice as an exclusive occupation. The account of his adventures in Herodotus is a fascinating story which reads like a chapter of the "Arabian Nights". Leaving Crotona, he went to Ægina, becoming State physician; then Athens and later Samos claimed his services. After the death of his master, Polycrates, tyrant of Samos, he was taken a prisoner to Persia. To quote Herodotus:

> It happened that King Darius, as he leaped from his horse during the chase, sprained his foot. The sprain was one of no common severity for the ankle bone was forced quite out of the socket. Now Darius already had at the Court certain Egyptians whom he reckoned the best skilled physicians in the world: to their aid, therefore, he had recourse; but they twisted the foot so clumsily, and used such violence, that they only made the mischief greater. For seven days and seven nights the king lay without sleep, so grievous was the pain he suffered. On the eighth day of his indisposition one who had heard before leaving Sardis of the skill of Democedes the Crotoniat, told Darius, who commanded that he should be brought with all speed into his presence. When therefore they had found him among the slaves, quite uncared for by anyone, they brought him just as he was, clanking his fetters, and all clothed in rags, before the king . . . Then Democedes, by using the remedies customary among the Greeks and exchanging the violent treatment of the Egyptians for milder means, first enabled him to get some sleep, and then in a very little time restored him altogether, after he had quite lost the hope of ever having the use of his foot.

He was successful later in treating the queen for an abscess or tumour of the breast. He thus came to stand high in the favour of the king. He nevertheless yearned to return to his own country. His stratagems and adventures in the attempt to do so fill several chapters of the Greek historian.

At Athens, at the Academy, Plato thought and taught medicine as well as other subjects. Sir William Osler has written on physic and physicians in Plato. He shows that the philosopher frequently drew upon his knowledge of medicine to give point to his teachings. Of special interest is the reference to Herodicus, known to have been a teacher of Hippocrates. In the "Republic", book three, Plato writes:

> . . . the sons of Asklepios, according to report, did not until the time of Herodicus resort to this coddling of disease which is characteristic of modern medicine. Herodicus was a trainer who fell into bad health and by a combination of gymnastic and medicine worried away to nothing first and chiefly himself and then many others after him, by making death a long process. His disease was mortal and he could not, I imagine, cure himself but he kept dancing attendance on it, gave up all his business, and spent his life in cures worrying to death at the smallest departure from his regular diet so that through his science he came to old age and died hard . . . It was neither from ignorance nor want of practical experience that Asklepios did not reveal this form of medicine to his descendants, but because he knew that in all well regulated communities each man has a special work assigned to him in the State, which he must do, and no one has time to spend life in being ill and being cured.

Those schools of philosophy were active centres of general and thus of medical knowledge; but when one philosopher discovered that an eclipse could be predicted and did actually predict an eclipse, or when another showed that movements of stars could be computed and calculated, the spirit of inquiry was stimulated and old ideas of divine causation were passed under review. Such a movement, once started, would gradually lead towards the investigation of disease on its own account. Side by side with the gymnasia and philosophic schools flourished the temple medicine. It was associated with the temples of Asklepios, whose priests were entitled Asclepiades. In Grecian mythology Asklepios was the son of Apollo and Coronis, born into a scene of dire tragedy, and educated by the Centaur Chiron in the art of medicine. When he raised the dead Hippolytus to life, Zeus, in anger, slew Asklepios by the thunderbolt. He came to be worshipped as the god of healing. Many temples arose in his honour, the chief being at Epidaurus. To them sick people went for cure, receiving there the ministrations of the priests of Asklepios. The temples were built in positions ideal for sanatoria—not too far from cities, being in well-wooded areas, with ample sunlight and in good hygienic surroundings. When cures took place the god was given the credit and votive offerings were made. Out of those temples grew by a logical process of development medical schools on the one hand and hospitals on the other. The experience of the priests and the records in the votive tablets were important factors. Moreover, before the people went into the temples for treatment at the hands of the god or of his priests they had to have much preparation, requiring accommodation in buildings. Thus houses had to be built for them to inhabit, and the necessity arose for the creation of a central hall for the priests. It will be noted not only that medicine came out of philosophy and religion, but that it still has roots in these, and to such beginnings it still owes some of its prestige and something of its character before the public mind.

Is there medical treatment outside gymnasia, schools and temples? There are practitioners outside of these, for the most part of an itinerant character. Except in a few of the largest cities, physicians did not locate themselves at one place for practice, but would visit one city and then another, ministering to the sick as best they could in such conditions. Hippocrates himself exercised his art in this manner. Some large cities employed a medical officer for public purposes.

From school and temple medicine the way begins to open to Hippocrates and Aristotle. Both were members of the family or guild of the Asclepiades. To Hippocrates, born on the island of Cos, and associated with its temple, tradition through the ages has assigned qualities known as the Hippocratic virtues, these features building up the ideal physician, learned, humane, calm, pure of mind, grave, reticent. To him belongs also the honour of having effected the separation of medicine from philosophy. Hitherto medicine had been a department of speculative knowledge; but it has been said, speculation does not cure the sick; and Hippocrates was eager to cure the sick. The purpose of medicine was, in his view, to do away with the sufferings of the sick, to lessen the violence of their diseases, and to refuse to treat those who are overmastered by their diseases, realizing that in such cases medicine is powerless. In this he appears to have in mind the fact that, in ancient Greek society, if a physician failed to cure a patient he had to suffer for his failure, perhaps with his life.

This separation of medicine from philosophy may, as in the case of Pythagoras, have been attended by such conflict as follows a breakaway of people establishing new and, therefore, strange ideas. There may have been strain, agony of spirit and dissension in family or professional associations. When Hippocrates effected this change he brought to the treatment of his sick a certain clear attitude of mind which consisted in trying to understand, to observe the sick man, practically to see how a sick man differed from a man who was not sick, to see how one sick man differed from another, to record the features of his illness and the treatment, and, at length, to get by comparison after much accumulation of material some idea of the methods most effective in dispelling the disease. That he should try to observe those things seems to us at first sight hardly worth remark; but Major states that the forty-two cases which Hippocrates recorded were almost the only record of the kind for the next 1,700 years. It was new to record them then; but as a result medical men today are putting down facts and investigating them.

The school of Cos concentrated on prognosis; that of Cnidus on diagnosis. Hippocrates wanted to know: "Will the patient get well? When will he get well? How long is he going to be ill? What is going to happen?" In his method of reaching the answers to these questions, diagnostic, discriminative study was required. Hippocrates has the honour of having initiated in the sphere of medicine that direct interrogation of Nature, that observation and accumulation of facts which leads eventually to scientific truth. A little later Aristotle applied a similar method over a vast field constituting natural science.

> He ranged all art, all life, and lit a fire
> That burns yet after twice a thousand years.

The works called the Hippocratic Collection are numerous, at the most seventy-two, or, if some thought spurious be omitted, about sixty. It is believed by critics that only a relatively small number are by Hippocrates himself. For centuries the Greek originals were lost, but the works persisted in Arabic and Syriac versions and were carried through Asiatic countries and Northern Africa into Spain, and then in Latin through Europe. Manuscripts in the Greek were discovered only in the fifteenth century. Hippocrates has left clinical descriptions of great value, including the *facies Hippocratica*, the Hippocratic fingers, and Hippocratic succussion. The Hippocratic oath displayed in this hall finds an all-honoured place in almost every medical association of today. A very valuable paper appeared in THE MEDICAL JOURNAL OF AUSTRALIA in 1936, from Dr. J. G. Avery, a Melbourne graduate, now of Brisbane, in which he described and commented on the oath and reported an investigation made by him throughout the universities of many countries to ascertain in what proportion the Hippocratic oath was in use as portion of the graduation ceremony. He found that of forty-one universities in the British Empire which confer medical degrees, only ten make use of any form of oath; but he concluded that "even if the ritual of the oath is languishing, its spirit is far from dead". The oath stands as the embodiment of exact medical behaviour and practice, the embodiment of the golden rule as between doctor and patient and as between one doctor and another. To have laid down at so early a date ethical standards for medical practice still valid and current after more than twenty-three centuries is a most remarkable achievement.

The plague of Athens occurred in the lifetime of Hippocrates. It was in the second year of the Peloponnesian war. Thucydides's famous account of it in the second book of his history is familiar to students of classical literature. There is little information regarding this plague in ordinary medical works. Most text-books of medicine state merely that the plague of Athens was not plague, but do not commit themselves further. Many historical writers, however, have treated the matter, some very extensively. For instance, Gibbon refers to a commentary of Fabius Paullinus Utinensis of 600 pages on the plague of Athens. Thucydides says that it appeared first in Lemnos and in the parts round about. In this geographical fact we find a link with Stawell, for it was at Lemnos that there occurred the dramatic incident narrated of Stawell by Dunhill as an example of his courage. Young men, insufficiently trained, were being put through severe exercises to which their health was unequal, and they were collapsing. A high officer said: "You are civilians, I will make soldiers of you"; and Stawell said: "You are not making soldiers of them, you are killing them." The plague reached Piræus and thence Athens, overcrowded with population from the surrounding country, which was being ravaged by the enemy. The features of the plague are described by Thucydides, who had himself suffered from the disease and seen it in others. It is to be remembered that he had no medical training and was writing ten years afterwards. He was a master

of exact description. He may have collaborated with others. It has been held that he may have shown his notes to Hippocrates. There is something suggestive of the Hippocratic style in his narrative. Here is Thucydides's account of the initial symptoms:

> . . . suddenly while in the enjoyment of health, were seized at first with violent heats in the head, and redness and inflammation of the eyes; and the internal parts, both the throat and the tongue, immediately assumed a bloody tinge, and emitted an unnatural and fetid breath. Next after these symptoms, sneezing and hoarseness came on; and in a short time the pain descended to the chest, with a violent cough. When it settled in the stomach it caused vomiting; and all the discharges of bile that have been mentioned by physicians succeeded, and those accompanied with great suffering. An ineffectual retching also followed in most cases, producing a violent spasm, which in some cases ceased soon afterward, in others much later. Externally the body was not very hot to the touch, nor was it pale; but reddish, livid, and broken out in small pimples and sores . . . For the disease, which was originally seated in the head, beginning from above, passed through the whole body.

To read the whole story would take too long, but it is to be recommended as a splendid piece of writing, and as indicating wisdom in advance of medical opinion of his day. The symptoms could be accounted for by many acute infections, and the authorities are inclined to describe it as typhus, smallpox or plague. Also to be considered were meningitis, typhoid, paratyphoid, undulant fever, scarlet fever, diphtheria, malaria. The diagnosis would depend in large measure on the special features of the exanthem. A great deal of uncerthinty exists about the exact meaning of φλυκταίναι and ἕλκεα (translated above "pimples" and "sores"). There are a number of features that incline one to think that it may have well been smallpox. The smallpox eruption passes through various stages, namely, papulation, vesiculation and pustulation, and follows certain lines of distribution and spread. But it would be straining the language of the historian to read all this meaning into it. Raymond Crawfurd has cited passages from the Greek poets and elsewhere to show that no constancy in the use of those words obtained. They must be admitted to be equivocal. Crawfurd makes out a strong case for typhus, but Zinsser is quite satisfied that it is not typhus. Littré regarded it as an eruptive fever differing from smallpox, and now extinct.

Although the data are not sufficient for a complete differential diagnosis, admiration must be expressed at the care with which the symptoms and course of the disease have been set down by the historian. Without technical knowledge in such matters he presents a clear and reasoned account, enlightening yet baffling.

Through the ages great spirits have arisen, seeking to know, to learn, to teach, to be torch bearers, to illumine their own and succeeding generations. Let those who follow honour these great ones of the past. In Richard Rawdon Stawell his colleagues salute one ever aware, despite the richness of his knowledge, how much still remained to be known. They recall his eagerness in work and the high standard he exacted from himself no less than from others. I place on record with deep appreciation his noble and unselfish service in years of arduous examining, generously and cheerfully continued under a chairman much his junior. His clinical teaching has already had enormous influence in raising the level of professional work in Australia. To its ultimate effects no limit can be set. As he, with the lapse of the years, merges into the background, may this foundation serve to honour him, a unique personality in Australian medicine.

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Addendum.

By kind permission of Lady Stawell, and on account of its carefully detailed description of Napoleon, portion of a letter contained in "My Recollections", by Mary E. F. Stawell, is appended. The letter was written from Paris on April 6, 1802, by John Leslie Foster (afterwards Baron and Judge Foster), uncle of William Foster Stawell, to his sister Harriet, Countess de Salis.

Paris, April 6, 1802.

I send you an account of pomps and vanities and what you will think my great good fortune.

I was yesterday presented to Buonaparte, but before I give you an account of your Protege you shall endure a Chronological History of the means that brought me there.

The 15th of every French month the First Consul reviews in the Court of the Tuileries the Consular Guard; that is a selection of 5,000 or 6,000 men from all the Armies of France and accoutred at an Expense and with a magnificence that I suppose was never before lavished on an equal number of soldiers. After that he holds a Levee for the French Generals, the Foreign Ambassadors, and such Strangers as they present to him. The Etiquette of a Court and Court dress are strictly observed, and every one agrees that the Splendour of the Court of the Tuileries is much greater than ever was the old Court of France. Having an introduction to our Minister I was of course among the Anglais to be presented. At a previous Ceremony we were all introduced to Talleyrand Perigord, Minister for Foreign Affairs, the Day before. I shall not delay you with an Account of the Renegade Bishop of Autun. He is not worth it, it is enough to say of him that he was pompous, awkward, and uncivil. The Scarlet and Silver in which he was dressed only made him appear to the greater disadvantage. His person is as crooked as his principles, and his face unhappily for his beauty a faithful Picture of his Heart.

The next day, Monday the 5th, Augustus and I went to the Tuileries at eleven o'clock and were, luckily for us, by mistake admitted into the Salle des Generaux instead of the Salle des Ambassadeurs, which gave us an additional two Hours of Contemplation of Buonaparte.

At twelve he passed through the Room to the Parade. It lasted but an Hour. Buonaparte mounted on a noble

white Horse and surrounded by his Aides-de-Camp and Generals formed the finest Part of it. At one o'clock he returned to the Salle des Generaux. He spoke to almost every one in it, and with a Grace for an Account of which you must wait a little longer. I followed him everywhere in the crowd and hardly lost an expression of his Countenance. At two he retired to change his dress previous to receiving the Etrangers who were supposed to be all the time in the Salle des Ambassadeurs. I went down to them to fall into the Ranks, found about twenty Anglais, among them Lord Blayney, Lord Cowper, Lord Arch. Hamilton, Mr. Cust a Cambridge Friend, Luttrel, etc. The Ambassadors were all there. Among them were three celebrated Characters, Darmfeldt the Swede, Markoff the Russian, and Laccherini the Prussian. The Prince of Orange was there also. The most brilliant of the Company was Demidoff a Russian Nobleman. He had on his breast a single Diamond valued at £30,000. In half an hour we were shewn up the Stairs, formed a large Circle and were taken by the first Consul in the order that we stood. The Ambassador of each nation presented his own Countrymen, the first Consul said something to almost everyone, and not much to anyone.

Now for his Person what is he like. I will first tell you what he is unlike. In the first place he is unlike every other person in the World, and in the second place he is perfectly unlike every Painting, Print, and Bust that has been taken of him. I cannot say why so many Artists have so entirely failed, but if we may judge from the Past, Posterity will have no idea of the Countenance of Buonaparte, if Painting has failed, no words can succeed. However I am bound to tell you what I think of him. He is about 5 feet 7 inches high. Delicately and gracefully made. His hair a dark brown crop, thin and lank. His Complexion smooth, pale and sallow. His eyes grey but very animated. His eyebrows light brown, thin and projecting. All his features particularly his mouth and nose fine, sharp, defined, and expressive beyond description, expressive of what? Not anything fierce as the Prints represent him, still less of anything mechant, nor has he anything of that Eye whose bend doth awe the World. The true expression of his countenance is a pleasing Melancholy which whenever he speaks relaxes into the most agreeable and gracious Smile you can conceive. To this you must add the appearance of deep and intense thought, but above all the predominating expression a look of calm and tranquil resolution and intrepidity which nothing human could discompose. His address is the finest I have ever seen, and said by those who have travelled to exceed not only every Prince and Potentate now living but even all those whose Memory has come down to us. He has more unaffected Dignity than I could conceive in Man. His address is the gentlest and most prepossessing you can conceive, which is seconded by the greatest fund of Levee Conversation that I suppose any person ever possessed. He speaks very fluently, with particular emphasis, and in rather a low tone of voice. While he speaks his Features are still more expressive than his Words. . . .

Ever Yours, J.L.F.

PYELITIS, MEDICAL ASPECTS.[1]

By KEMPSON MADDOX,
Sydney.

I DO not intend to review the subject of pyelitis in the usual academic text-book fashion. I wish, if I can, to refer briefly to one or two aspects of a practical nature which from my own reading and experience have assisted me at the bedside. In addition, I am anxious to remind you of the recent renaissance of chemotherapy with particular regard to urinary infection.

My subject matter will hence comprise certain diagnostic aspects, the place of the sulphanilamide compounds in the treatment of urinary infections, and some special points in regard to the pyelitis of infancy and of pregnancy.

First, in regard to diagnosis, the physician encounters particularly the following disorders: acute "medical" pyelonephritis or pyelitis; pyelitis accompanying advanced renal failure; asymptomatic urinary infections; the imitation of urinary infection; exogenous urinary infection.

1. The so-called acute medical or acute primary pyelitis. This condition in the adult has a sudden severe onset, often with rigor and vomiting, severe lumbar pain, frequency of micturition and dysuria. Adolescents and young female adults are the most commonly affected. There is often a history of exposure to cold or even of an antecedent upper respiratory illness.

Both loins, not only the right, are highly sensitive to palpation. The urine is laden with pus and often mucus. The diagnosis is usually obvious. At times, however, toxæmia may be almost extreme, the eliciting of a satisfactory history may be difficult, and confusion with acute pulmonary or pelvic infection may arise. Unless a satisfactory examination of the urine is made, an acute exanthem may be suspected, or some preexisting redness of the fauces, with perhaps cervical adenitis, may be assumed to be the seat of infection. Rarely spasm of the pelvi-ureteric ring muscle or of those at at the openings of the calyces into the pelvis may mean a transitory cessation of the pyuria. Acute lesions in the cortex or perirenal zone may initially give rise to symptoms that lead to suspicion of pyelitis, and on discovery of pus-free urine the renal system may be excluded from further consideration.

To reduce these pitfalls three procedures should be emphasized. They are the following.

(i) As ever, a careful and chronologically arranged history must be taken. This will usually reveal the possibility of the acute pyelitis being actually the recrudescence of a chronic lesion, besides throwing light upon still earlier sites of infection, such as the tonsils or nasal sinuses, or leading to the suspicion of an associated calculus or neoplasm. Urgency of micturition with dysuria and after-pain may point to an initial trigonitis from which ascent to the pelvis took place.

(ii) A meticulous physical examination must be made to exclude such pulmonary and pelvic disorders as produce palpable and definite physical signs: the flanks must be observed. Gentle handling of the loins is essential. Any squeezing of the kidneys may evoke in receptive females an over-reaction which is deceptive.

(iii) The urinary deposit must be examined under the microscope. Naked-eye examination and the *"Liquor Potassæ"* test tell the experienced eye a

[1] Read at a meeting of the Western Medical Association on March 11, 1939, at Orange.

great deal; but early infections or specimens require microscopic observation. This really becomes a very rapid procedure if practised fairly often. By it one gains a better knowledge of the initial extent of the infection, a distinct aid in assessing subsequent therapy. Bacilluria is recognized, and if red blood cells and casts are present, a clue to involvement of the renal parenchyma is provided. If many mobile organisms are seen in an acid urine they are very likely to be of the typhocolon group, and so an indication is given as to the type of chemotherapy called for. The presence of epithelial squamous cells is a rough guide to the extent of contamination of the urine at the vulva. In this regard it is sometimes overlooked how close to an actual catheter specimen can be obtained by the patient herself, after a vaginal douche with soap and warm water and subsequent careful drying.

I know of no certain initial method of deciding whether some of the severe instances of this type of pyelitis are not actually suppurative pyelonephritis of the type to which Dr. Earlam will refer, except perhaps the therapeutic test of response to alkalis.

Alkalis are specific for pyelitis, that is, as far as relief of symptoms is concerned. Since 90% of these infections are due to the *Bacillus coli communis* it is essential to render the urine alkaline in the shortest possible time. This requires the administration of a variable amount of alkali, which is continued in doses or one to two drachms every two hours until the urine is alkaline to litmus. Copious fluids, especially orange drinks, weak tea, lemonade or "L.B.W.", a total of five pints daily, help to reduce the urinary acidity which favours bacterial growth. The patient's family can usually be taught to test each specimen with litmus. When the acidity is reduced the dose of alkali can be halved. The administration of more than two drachms of sodium chloride a day will make up the salt loss, which is considerable. Hyoscyamus, which contributes largely to the disgusting taste of the usually prescribed mixture, is of negligible value. Even eserine given hypodermically has not, in my experience, been an added advantage. Morphine may be called for in the acute stage.

℞.

Sodii Citratis.
Potassii Citratis.
Sodii Bicarbonatis, āā gr. xx.
Tincturæ Gentianæ Compositæ, m. vi.
Aquam Chloroformi, ad ʒss.

Alkali therapy may quite soon be replaced by the immediate administration of sulphanilamide, but will always remain a useful and universal stand-by for the rapid relief of symptoms. If much renal impairment is present alkalosis may supervene, and the symptoms may be mistaken for a continuance of the toxæmia of the infection. More caution, therefore, is required if the urine is heavily albuminous. Immediately afterwards one may proceed to attempt urinary sterilization. Ideally the patient should be kept in bed until this is achieved. Meanwhile a search for focal infection elsewhere is instituted. If the urine becomes pus-free on microscopic examination, an attempt at culture of a catheter specimen is desirable if facilities permit. Recurrences arising from a temporarily harmless bacilluria are common, and a definite effort to kill off all residual organisms is imperative. Finally, if no improvement follows after ten to fourteen days of adequate chemotherapy, it is probable that some obstructive or surgical element is present. Urography and endoscopy are called for. Neglected pyelitis inevitably leads to renal damage (Fahr, 1938). I am satisfied that most patients suffering from "primary" acute pyelitis recover spontaneously; but alkalis lessen the suffering and some urinary antiseptics help the natural defences to kill bacteria more quickly. In my opinion vaccines in chronic cases are obsolete.

2. Pyelitis accompanying advanced renal involvement. The majority of patients with pyelitis and advanced renal involvement have a surgical reason for their condition, and will be mentioned by Dr. Earlam. In some instances, however, the renal damage precedes the pyelitis, perhaps because a degenerating kidney is lined by a less resistant pelvic mucosa. Thus pyelitis may complicate a true interstitial nephritis, subacute nephritis, nephrosis or the so-called "ischæmic kidney" of late essential hypertension. I am very interested, however, in the concurrence of pyelitis in young people with urographic evidence of dilatation of the entire urinary tract above the level of the internal meatus. This bilateral hydroureter and hydronephrosis is seen in renal dwarfs in an extreme form. I firmly believe that lesser degrees exist in some adolescents who present themselves as suffering from chronic nephritis for which no obvious reason exists. By the time their condition is recognized by the physician all hope of recovery is long over. It may be that some future neurological surgeon may be able to relieve the condition if it reveals itself as pyelitis in early childhood.

3. The asymptomatic urinary infection. In the course of routine investigation a certain number of patients, usually females in late middle life, are discovered to have pyuria. This may be the result of an old pyelocystitis, of which a direct history is obtainable, or of a cystocele, or of contraction of the internal meatus *et cetera*. The condition is usually one of infection of the lower rather than the upper portion of the urinary tract. At any rate, these individuals appear to have a rather satisfactory immunity to the causal organism, though a careful temperature record will often show occasional "kicks". The majority will need surgical attention; but before they are committed to the care of the urologist trial of a potent urinary antiseptic and of measures directed towards improvement of general health and relief of constipation and the frequently associated anæmia is indicated, together with a search for any other debilitating factor, focal, metabolic or psychological.

4. The imitation of urinary infection. I propose to give a rather inadequate description of a few patients whom Dr. Earlam and I have seen, who have sought advice on account of frequency of micturition, but in whom no sign of urinary infection was ever found. Some of these patients have a kind of reflex lowering of the threshold for bladder fullness, sometimes in association with chronic pain in segmentally related areas—for example, sacral and coccygeal pain. Others have chronic cervicitis, others again have no additional symptom or sign. They are infinitely more suited to the persuasions of a psychiatrist than to those of the cystoscope. Such negative bacteriological findings, of course, call for a meticulous examination of the central nervous system to exclude *tabes dorsalis*, disseminated sclerosis, spinal tumour, *spina bifida occulta et cetera*.

5. Exogenous urinary infection (catheter fever). The introduction of a catheter to relieve bladder distension in coma or spinal lesions or to obtain specimens of urine is unavoidable, but frequently leads in these states of low tissue resistance to cystitis and subsequent ascending infections. No method has existed hitherto of effectively preventing this by chemotherapy; perhaps the sulphanilamides will have a future here.

Urinary Antiseptics.

Our waning faith in urinary antiseptics has recently been strengthened by the advent of the sulphanilamides. Hexamine and the dye antiseptics, such as neotropine, pyridium *et cetera*, were largely disappointing. The accidental discovery by Helmholz of the antiseptic effects upon the urine of a ketogenic diet led, as you know, to the introduction of mandelic acid and its salts, which, in my experience, were more disappointing than the literature indicated. Nevertheless, they were until two years ago the best drugs available. Recently ammonium mandelate, which combines the acidifying effects of ammonium chloride with the antiseptic properties of mandelic acid, has given place to calcium mandelate or "Mandecal" (British Drug Houses), a less soluble and a less nauseating compound. Calcium is fixed as calcium chloride and the mandelic acid is excreted. The dose is 4·5 grammes four times a day. If the kidney has normal power of concentration the urine commences to become acid within eighty minutes of administration; but it is only when the pH reaches 5·5 or less that the urine has a bactericidal effect. This point is indicated by the failure of a buffered solution of methyl red to change to yellow on the addition of five drops to the specimen. Excretion is maximal two hours after administration. It is of no use to give calcium mandelate less often than four hourly, nor to continue its use for more than twenty days. It is most effective against *Bacillus coli* and least effective against *Bacillus proteus*.

Sulphanilamide refers to a group of substances containing the sulphonamide group attached to a benzene nucleus. Though they were known for thirty years as fast dyes and were almost used as antiseptics on several different occasions, it was not until 1932 that Mietsch and Klarer took out a patent for the original "Prontosil" as an antiseptic. In 1935 Domagk announced its striking protective action for mice against streptococci. Actually the presence of the sulphonamide group was found to reduce antiseptic activity *in vitro*; but the biological results *in vivo* exceeded all expectations, and the credit for the greatest therapeutic advance since Ehrlich must once more go to German chemists. During the past four years intensive chemical and clinical research in Germany and England has produced a confusing array of the latest substances having certain specific bacteriostatic and bactericidal effects, and it is certain that these encouraging results will be further improved upon. For an excellent summary of the progress already achieved I would refere you to the article by Dr. Beatrix Durie in THE MEDICAL JOURNAL OF AUSTRALIA for December 31, 1938, and to Dr. Whitby's Bradshaw Lecture published in *The Lancet* of November 12, 1938.

The nomenclature provided by the proprietary firms is most confusing. As Garrod remarks: "Some of the trade names form a clue to identity, while others appear quite meaningless. It is to be hoped that the manufacturers gain some advantage from this practice commensurate with the confusion which it causes." From the standpoint of urinary antisepsis, sulphanilamide (synonyms: "Prontosil album", "Streptocide", "Sulphonamide P") is definitely the most effective; but it is also the most toxic. The least toxic and probably the least potent are "Uleron" and "M. and B. 693", in which one hydrogen atom of the sulphonamide group has been substituted. These substances are therefore indicated when the patient is debilitated or has lost a considerable amount of renal reserve. A curious form of symmetrical peripheral neuritis, however, occurs occasionally. The toxic properties of sulphanilamide are so outdistanced by its advantages that it is unwise to emphasize them unduly. Immediate effects are alarming rather than dangerous. Serious idiosyncrasies have been reported, and it has been estimated that 15% of individuals cannot take sulphanilamide. These effects are all rare.

It is my practice to commence treatment with a trial dose of half a gramme. Cyanosis, unless deep, can be discounted. It is necessary to exclude the simultaneous or immediately previous ingestion of sulphates, sulphur-containing foods and the coal tar antipyretics. Some headache, lassitude and giddiness can also be discounted. When one compares the number of cases of severe bone marrow damage reported with the extreme frequency of sulphanilamide therapy, one realizes that such a complication must be exceedingly uncommon.

Sulphanilamide is most successful against *Bacillus coli communis*, *Bacillus proteus* and in certain streptococcal infections. "Uleron" and "M. and B. 693", however, promise to give better results

in these and in staphylococcal infections; but the literature is often contradictory in this regard. The reason is probably, as Cokkinis states, that no organism is 100% resistant or 100% susceptible. Indeed, bacterial sensitivity to these substances appears to be highly selective; even the susceptibility of a given strain in the same patient may vary. It is for this reason that relapses of urinary infection are best treated by another member of the series; this fact gives hope for more specific therapy in the future.

The minimum effective dose of sulphanilamide is one tablet (half a gramme) three times a day. This is rapidly absorbed; the peak of blood concentration is reached in three hours and the sulphanilamide is completely absorbed in four hours. It appears quickly in the urine, reaching a higher concentration there than in any other region (as much as 125 milligrammes per 100 cubic centimetres). It is present in the urine in both free and conjugated forms. It prevents the resorption of alkalis in the tubules and so produces an alkaline urine. Some authorities fear acidosis on this account and give alkalis to counteract it. I have not found this measure necessary. Actually the drug is more bactericidal in an alkaline urine. Sulphanilamide can be given safely during the acute stage of urinary infection and when some renal damage is present. However, there is some evidence that it is more efficient at a later phase after natural immunity has begun to establish itself. In advanced renal disease I have seen toxic features of undesirable severity appear.

An effective dosage should clear the urine within three to four days; if the urine is not clear in that time, and if there is no intolerance, a trial of two tablets given three times a day is warranted. If no success is obtained after a total period of ten to fourteen days, a change to another sulphonamide preparation may be tried. Probably, however, some surgical reason exists for the chronic infection.

Actually "Prontosil" applied locally is of little value in other infections, and probably this also applies to infections of the urinary tract. It may be that its success in pyelitis is due to an action through the blood supply to the uro-genital system.

TABLE I.

A Comparison of Mandelic Acid and Sulphanilamide.[1]

Mandelic Acid.	Sulphanilamide.
Of value against *Bacillus coli* and enterococci.	Effective against *Bacillus coli*, *Bacillus proteus*, streptococci and staphylococci.
Contraindicated in acute infections.	Can be used in acute pyuria.
Of no use if the kidney is damaged.	Can be given with a moderate or minor grade of renal damage.
Effective only when acidity exceeds pH 5·5.	Acts best in alkaline urine.
Of no value in prostatitis.	Of value in prostatitis.
Has 50% cures. (Average of several series.)	Has 75% to 80% of cures.
Effective in 10 to 21 days.	Effective in 2 to 5 days.
Expensive and troublesome to use.	Cheap and easy to use.
Non-toxic.	Slightly toxic.

[1] Many instances are quoted in the literature of cure by sulphanilamide after failure with mandelic acid.

Pyelitis in Infancy.

Apart from pyelitis occurring as a complication after one of the acute fevers, urinary infection in childhood is generally secondary to some obstruction, either organic or sphincteric. The commonest site for achalasia is at the bladder outlet; of the organic causes, congenital malformations are more common in boy babies, although pyelitis occurs more commonly in girl babies, the ratio being 4 or 5 to 1. One of the commonest reasons for this in girls aged under twelve months is adhesion of the *labia majora* or *labia minora*. The commonest symptom by far is frequency of micturition, the baby being continually "wet". There may be crying on micturition; the baby fails to gain in weight and becomes anæmic. Remote and toxic effects, such as diarrhœa, convulsions and meningismus, are seen in the more acute cases. In time, achalasia will lead to hydroureter and hydronephrosis. Excretion urography has a very important role in the elucidation of these conditions. Focal infections should be sought for.

Treatment must be preceded by a very careful examination, because of the frequency in girl babies of membranous adhesions, which are readily broken down with a probe without anæsthesia. Signs of local irritation are usually obvious. The collection of specimens of urine from male babies is a simple matter. Some years ago I had a small rubber trough with tapes over the shoulders made for application to girl babies. This usually collects enough urine for examination. The child's diet is already fluid, so that additional fluids are hardly called for. The infecting agent is almost always *Bacillus coli communis*. It is important to make the urine alkaline as soon as possible. The child must be forced to take citrates in doses of at least 40 grains every four hours, flavoured with orange juice or syrup of lemon. If the child refuses this, the crystals can be mixed with the food. Each specimen of urine is tested with litmus, and effective alkalinization is accompanied by rapid cessation of symptoms. If pus or organisms persist, a trial of ammonium mandelate as an elixir ("Mandelix") has been the next step. The following "acidifier" is one suggested by Dr. E. H. M. Stephen, of Sydney:

℞.

Ammonii Phosphatis, gr. vii ss.
Extracti Glycyrrhizæ Liquidi, m. v.
Syrupi Limonis, m. xv.
Aquam ad ℥i.

A dose of mandelate is 1·5 grammes (22 grains) contained in each drachm of the syrup, and this is given twice a day to a child aged one year. A quick clearance of the urine is no criterion that a congenital anomaly does not exist; if this is present a recurrence is almost certain and calls for surgical investigation. Sulphanilamide has been used for somewhat older children and for mixed infections. It is effective in alkaline urine; one-third of a tablet is given three times a day to infants, half a tablet to children aged one to five years, and one tablet three times a day to children aged from ten to fifteen years, with the usual omission of sulphate

and sulphur-containing foods. The treatment can be discontinued after five days if no improvement results. Protracted bed-wetting calls for clinical and radiographic examination of the lumbo-sacral portion of the spine. Iron is generally needed during convalescence.

Pyelitis in Pregnancy.

I feel I must refer to the recently greatly improved outlook of pyelitis in pregnancy. It has been shown that dilatation of the ureters, especially of the right ureter, is normal in pregnancy from the sixth week onwards. This was thought to be physiological, but it is probably obstructive and related to the inclination of the uterus towards the right side. It has been found also that 7·5% of all pregnant women harbour *Bacillus coli communis* in the urine, but only 1% contract pyelitis. Ninety *per centum* of cases of pyelitis in pregnancy are due to *Bacillus coli* and are strikingly responsive to sulphanilamide in a dose of 0·5 gramme three times a day. Kenny, Miles *et alii* had no failures in a series of 45 cases in a very few days. Postural measures to relieve ureteral stasis are also advisable, but are not mentioned in their paper. Bacilluria recurred in six cases, but no pus formed. They state that sulphanilamide can be given even if the patient suffers from albuminuria or preeclamptic toxæmia. Two patients whom I saw this year with this disorder recovered speedily under this régime.

Conclusion.

Finally, there are three main reasons why the physician often fails to cure pyelitis: (i) failure to distinguish between primary and recurrent attacks; (ii) inadequate chemotherapy and "follow-up" of our patients; (iii) the presence of some surgical or sphincteric obstruction.

We must proceed according to a definite plan, such as I have tried to outline.

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PYELITIS AND PYELONEPHRITIS FROM THE SURGICAL POINT OF VIEW.[1]

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I do not propose in this short lecture to make any attempt to cover the large subject of renal infections in a systematic manner, but I intend to concentrate on the practical points in regard to diagnosis and treatment.

[1] Read at a meeting of the Western Medical Association on March 11, 1939, at Orange.

Uncomplicated pyelitis is not a surgical disease; it is an acute infection of the renal pelvis, whether with or without some parenchymal involvement, which runs a definite clinical course, responds well to medical treatment and finally clears up completely. I believe that if previously healthy patients suffering from pyelitis, occurring in a previously normal urinary tract, were put to bed and treated with copious fluids, they would all get completely better. The term "pyelitis" is used by the urologist only when he is referring to this type of case—namely, an acute infection of the renal pelvis that responds rapidly and completely to medical treatment. All other renal infections are referred to as "pyelonephritis". As regards the cases of chronic pyelitis that one hears so much about but almost never sees, the term in the vast majority should not be pyelitis, but "pyuria, for investigation".

Before, however, passing to consideration of surgical renal infections, I should like to make a few remarks about pyelitis from the urological point of view. I am certain that very many infections that have cleared up with the use of urinary antiseptics, "Neotropin", mandelates and so on, would have cleared up in any case. I am also certain that many such infections that I have treated in the past, when the pyuria has not cleared up completely, by ureteral catheterization and pelvic lavage, would also have cleared up without this treatment. During one's early years in practice one enthusiastically carries out various forms of treatment in which, as time goes on, one more and more sees the lack of merit, and I now cannot understand how the instillation, once weekly, of antiseptic into the renal pelvis is of any more real use in the treatment of a renal infection than, say, a weekly bladder irrigation in the treatment of cystitis or, for that matter, a weekly gargle as a treatment for chronic tonsillitis. This is not to say that pelvic lavage is entirely devoid of use. It has some application, but the application is limited.

As regards the subject of pyelonephritis from the surgical point of view, I shall discuss chronic pyelonephritis first, and that shortly. Chronic pyelonephritis is almost always secondary to urinary tract obstruction, either ureteral or urethral, and either organic or dynamic. Its treatment is either the treatment of the obstruction or, only too often, removal of the hopelessly damaged kidney, and no patient should be classed as suffering from uncomplicated chronic pyelitis or chronic pyelonephritis without a complete urinary tract investigation. If this is carried out, very few patients indeed will be found to be in this classification. Prolonged medical treatment, in the absence of early and definite response, should never be carried out for any urinary tract infection. I cannot stress the fact too strongly that if a patient, when seen for the first time, has a disorder which is not acute and pyuria which he or she has presumably had for some time, it is usually quite useless to try to clear up the condition by medical means. It is infinitely more satisfactory to under-

take investigation without delay. I realize, of course, that prolonged medical treatment often appears to be necessary to convince a patient that it is useless; but more often, I think, it happens that patients are not particularly grateful to practitioners who have kept them for months on medical treatment for pyonephroses or renal calculi. This is not to say, of course, that all patients with pyuria, other than those suffering from acute pyelitis, should be submitted to immediate cystoscopic examination. One has to be guided by the most likely presumptive diagnosis, by the severity of the patient's symptoms, by the degree of his incapacity, by the urgency or otherwise of adequate treatment, and by the presence or absence of associated disease outside the urinary tract. In some cases one will proceed at once to cystoscopic investigation, in others to excretion pyelography, in others to bacteriological examination of the urine, and in others again, in the presence of a presumed bilateral infection, to biochemical studies. In cases of mild pyuria associated with few symptoms I think a period of medical treatment is reasonable. Gross pyuria, with definite symptoms, however, requires early investigation. It is usually found that chronic pyuria of renal origin requires surgical measures, and, in my experience, renal pyuria present over a period of years never clears up without nephrectomy.

While I am on the subject of chronic pyuria it will be perhaps of some interest to mention briefly chronic symptomless pyuria. One sees this condition not infrequently, and most patients whom I have seen have been referred to me as suffering from chronic pyelitis. The cause is usually one of three conditions: renal calculus, infected hydronephrosis or prostatitis. This last condition I should particularly like to stress, as it is often missed. Also it is a condition which in my experience frequently responds well to sulphanilamide.

I can best spend the rest of the time at my disposal by discussing briefly acute renal infections other than acute pyelitis. These are acute fulminating pyelonephritis, acute cortical abscess and acute infections complicating chronic pathological conditions of the urinary tract.

Acute Fulminating Pyelonephritis.

Acute fulminating pyelonephritis is not a common condition. It commences usually as a rather severe acute pyelitis, but instead of responding to medical treatment the patient goes rapidly down hill. There are repeated rigors, toxæmia is profound, and the patient is usually stuporose, often delirious. Sordes may be present on the lips. The pyuria is not necessarily gross. One characteristic feature is extremely acute tenderness on palpation of the flank on the affected side. Investigation typically gives normal findings, though the diagnosis can often be made clinically from the history, the profound toxæmia and the acute lumbar tenderness. The only means of saving life is immediate nephrectomy, and improvement is dramatic. The case of one patient may be quoted as exemplifying the condition.

The patient was a woman, aged forty-two years. In the previous five years she had had two attacks of pyelitis, which had responded to medical treatment. Nine days before I saw her, while she was in bed being treated for chronic myocarditis, right lumbar pain developed, with frequency of micturition and scalding. Her urine contained pus cells, but the pyuria was not gross. A culture of *Bacillus coli* was obtained. The patient went steadily down hill. Three days before I saw her she had a rigor and had another on the day on which I saw her. She was extremely toxæmic and had acute tenderness and rigidity over the right flank. A cystoscopic examination was carried out and there was no obstruction in the right ureter. Nephrectomy was performed and after an anxious day or two she made uninterrupted progress. Examination of the kidney revealed generalized engorgement and several infarcts.

If the lesion is bilateral it is almost uniformly fatal, and it may be a terminal condition in those of advanced years. I have seen one patient, however, apparently suffering from a fulminating bilateral infection, whose case demonstrates the importance of not making this diagnosis without appropriate investigations.

The practitioner who asked me to see the patient had seen her himself for the first time a week previously. She was a woman, aged forty-five years, who three days before she sought medical advice had contracted bilateral lumbar pain, frequency of micturition and scalding. She was ill when first seen and became rapidly worse. She was delirious when I saw her, toxæmic and almost non-cooperative. She had acute tenderness in both flanks and had had several rigors. The day before I saw her she had passed fifteen ounces of urine, and during the following twelve hours only four ounces. Her urine was loaded with pus and her blood urea content was 120 milligrammes per 100 cubic centimetres of blood. I gave my opinion to the effect that the outlook was almost certainly hopeless and that it was not likely that any treatment would be of avail. Rather against what I considered to be my better judgement I carried out a cystoscopic examination. The patient had a pin-point external urinary meatus. After this had been dilated seventeen ounces of offensive residual urine were removed. The patient was treated with an indwelling catheter and copious fluids, and her progress was uninterrupted. Without instrumentation I am sure she would have died within forty-eight hours.

Acute Cortical Abscess.

Acute cortical abscess occasionally occurs as an embolic infection following staphylococcal infections elsewhere, such as boils and carbuncles, and the diagnosis is often extremely difficult, at all events in the early stages, when the patient is not ill, complains of lumbar pain which is not severe, and has some vague tenderness and an elevation of temperature. The urine is clear and the pyelogram usually normal. Most commonly the abscess ruptures into the perinephric tissues, and this leads to the formation of a perinephric abscess. After surgical drainage, in the course of which the abscess cavity can often be felt in the renal cortex, the patient usually makes uninterrupted progress. On rare occasions I think it is possible that the abscess may become sclerosed and spontaneous cure may occur; I have had one case at least in which I think this may have taken place.

Occasionally the condition known as renal carbuncle may be encountered, but it is rare. The

history is short, the patient is extremely ill, and urgent nephrectomy is required. The principal clinical differences between this and acute fulminating pyelonephritis are the absence of pyuria and the presence in the former condition of deformity revealed by pyelography.

Acute Renal Infections Complicating Chronic Urinary Disorders.

Acute renal infections complicating chronic pathological conditions of the urinary tract can be considered in two groups: (*a*) those associated with obstruction of the lower part of the urinary tract, (*b*) those associated with obstruction of the upper part of the urinary tract.

In the first group of cases by far the commonest infection is pyelonephritis associated with prostatic obstruction. Almost certainly the great majority of elevations in temperature associated with prostatic obstruction, in the absence of an obvious cause, such as epididymitis or periurethral abscess, are due to pyelonephritis; and in spite of the strictest attention to aseptic detail one encounters this from time to time in the course of preparation for operation by means of the indwelling catheter of patients suffering from prostatic obstruction. Often it adds tremendously to the length of stay in hospital, and occasionally one regrets having prepared the patient at all. A few authorities, some very eminent, hold that all candidates for prostatectomy should as a routine measure be prepared for operation with the indwelling catheter; but the modern trend of opinion, and for that matter the practice at the Royal Prince Alfred Hospital, is to prepare as few as possible. Unless there is obvious impairment of renal function, associated with residual urine, it is seldom necessary to prepare the patient whose urine is clear. The patients who most often require preparation are those who have complete retention of urine, requiring repeated catheterization, and who when admitted to hospital have an acute infection of the urinary tract. The indication here is for copious fluids, and with a ward full of "prostatics" it is amazing to what extent the element of competition between individual patients can stimulate the urinary secretion. The record twenty-four hours' excretion in the urological ward stands at the present time at a little over 400 ounces, and the majority of patients are usually "off the top" of their urinary charts. I might mention that although most teaching is in favour of the routine use of urinary antiseptics in these cases, I cannot see their value in the presence of a really satisfactory twenty-four hours' excretion. If the temperature will not remain normal with catheter drainage and copious fluids, I know of no measure other than cystostomy and the two-stage operation that will make it do so. There are good reports in the literature about sulphanilamide under these conditions, but in this type of case I have had no success with it at all. In my hands it has never saved from cystostomy a patient with prostatic obstruction and pyelonephritis that is proving obstinate to treatment. However, in view of the success that appears to have attended its use elsewhere, I think one should give it; if it does no good, it will at least do no harm, and one has the satisfaction of having tried "every shot in the locker".

The second group under present consideration is that in which the patient with a history of illness sometimes extending over some weeks, sometimes longer, has pyuria and a rise in temperature. No patient in this category has pyelitis. They almost all have a pyonephrosis or infected hydronephrosis, with or without calculi, and require surgical interference. Many of these patients have a profound secondary anæmia. Often they are extremely ill. Nephrectomy is usually indicated; but it can seldom be performed in one stage, so that a two-stage nephrectomy has to be carried out. Nephrostomy, for which cyclopropane anæsthesia is often all that the patient can stand, is the immediate indication. Only a small incision is necessary; but one should do more than merely incise the cortex and insert a tube. One should explore the interior of the kidney digitally, if possible exploring each calyx individually and making sure that there is free communication between them and the part of the kidney that is drained, and if possible removing any calculi. Immediate, sometimes dramatic, improvement usually follows, and six to eight weeks later one can proceed with nephrectomy. The temptation, of course, is to do this in the first place and so avoid a difficult secondary operation; but it should almost always be firmly resisted. If a small incision is made, about a square inch of renal cortex being exposed and the kidney being disturbed as little as possible, the secondary operation is hardly more difficult than a one-stage nephrectomy would have been. Occasionally, however, it happens that one is confronted with a large kidney, full of calculi, in which adequate surgical drainage is impossible. Here one has to perform nephrectomy and let the patient take his chance.

Two cases may be quoted as exemplifying this condition.

The first patient was a woman, aged thirty-eight years, who had a history of attacks of right lumbar pain of twelve months' duration, each attack being accompanied by vomiting. She had had a swelling in the right flank for nine months. Five years previously she had had a left-sided perinephric abscess drained. A skiagram taken in the country revealed bilateral calculi, the calculus on the right side being apparently in the pelvis with prolongations into the major calyces, and that on the left side in the lower pole.

On examination the patient was pale and looked ill. She had considerable pyuria, and a large tender mass, apparently a pyonephrosis, in the right flank. Her temperature each evening rose to 101° or 102° F. She had 1,820,000 red cells per cubic millimetre of blood, and a hæmoglobin value of 33%. Cystoscopic examination revealed a "tooth-paste" efflux from her right ureteral orifice. Intravenously injected indigo-carmine appeared, in fair concentration only, from her left ureteral orifice in nine minutes. Her blood urea content was 98 milligrammes per 100 cubic centimetres of blood.

After two blood transfusions nephrectomy was carried out under cyclopropane anæsthesia. After some difficulty the calculus in the pelvis was removed through the nephrostomy incision, drainage thus being provided for the calyces other than the one over which the cortex was incised.

Her condition improved gradually after this. Two months after the nephrostomy pus was still being discharged from the operation wound and her temperature occasionally became elevated; but she now had 3,060,000 red cells per cubic millimetre of blood and a hæmoglobin value of 60%. Her blood urea content was 75 milligrammes *per centum*, and she was unable to concentrate urea in the urine beyond 1·35%. Her urine was clear.

Nephrectomy was carried out at this stage, blood transfusion being given in the operating theatre. After much trouble with an infection in the depths of the operation wound it finally healed completely and she left hospital three months after her nephrectomy, in good general condition but still with impaired renal function and a secondary anæmia.

Without operation, or if one-stage nephrectomy had been performed, this patient would certainly have died. In addition to illustrating the application of two-stage nephrectomy, this case also illustrates the fact that if one kidney is functionless and requires surgical treatment, disease of its fellow does not contraindicate nephrectomy.

The second patient, who had had left nephrolithotomy carried out five years previously, suddenly began to have left-sided pain and rigors. Over a period of ten days she had seven or eight rigors, her temperature on one occasion reaching a level of 106·6° F. Excretion urography resulted in normal findings on the right side, while on the left nine or ten calculi were distributed at random in a large functionless kidney. The patient was extremely ill and presented the clinical picture of acute fulminating pyelonephritis already described. Nephrectomy was out of the question. Under cyclopropane anæsthesia nephrostomy was carried out, several calculi were removed, the interior of the kidney was explored digitally, and septa between loculi were broken down as far as possible. About ten ounces of thin offensive pus were evacuated. After this the patient had no more rigors and her general condition improved greatly. From the operation wound, however, pus and urine continued to drain and her temperature did not settle completely. Six weeks after the nephrostomy, nephrectomy was carried out. The operation wound was slow in healing, but the patient finally did well.

This patient's history illustrates the fact that the drainage afforded by nephrostomy is not necessarily perfect, though it is usually adequate and sufficient to tide the patient over his acute infection and lead to improvement to a stage at which nephrectomy can be carried out. With a simple calyceal system and a large renal pelvis drainage can be perfect. After nephrostomy the temperature falls and remains normal and the purulent discharge may cease, the wound may heal, and the patient may be left with a dead sclerotic kidney for which further surgical measures are not required. If, however, the pelvis is small and the calyceal system complicated, excellent drainage is afforded to the dilated calyx in which the nephrostomy tube is placed, but drainage of the other calyces through the pelvis into this particular one is necessarily imperfect. The purulent discharge persists, the temperature may or may not fall completely to normal, and nephrectomy is required.

THE PLACE OF CÆSAREAN SECTION IN THE TREATMENT OF PLACENTA PRÆVIA.[1]

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In recent years a considerable amount of attention has been directed to the study of the results of treatment of *placenta prævia*, and statistics covering a large series are now available for our information.

Formerly the conservative treatment of plugging the vagina until the os was sufficiently dilated to allow the use of Braxton Hick's method of bipolar version was the method probably most commonly used. This method gave comparatively good results so far as the mother was concerned; but the fœtal mortality was terribly high, and in order to try to reduce this loss of infant life, other methods were evolved, such as the use of the hydrostatic bag, Willett's scalp traction forceps, rupture of the membranes, and Cæsarean section.

At the present time many eminent authorities in Great Britain and America are strong advocates for the use of Cæsarean section, and they present figures showing the excellent results that can be obtained both for mother and child by this method of treatment.

My remarks today are concerned with a discussion of the place of Cæsarean section in the treatment of *placenta prævia*.

The reason why Cæsarean section has been so strongly advocated is that the fœtal mortality associated with conservative methods even in the most favourable circumstances is as high as 40% to 50%. Of course, in many cases the fœtus will die because of the placental separation before treatment has been begun, and it has been estimated that the unavoidable fœtal death rate is about 25%. There is also the risk of fœtal deformity, which is prone to occur in *placenta prævia*.

When the obstetrician is deciding which method of treatment should be adopted many things have to be taken into consideration; among them are the following: (i) the variety of *placenta prævia*, (ii) the amount of bleeding which has taken and is taking place, (iii) the degree of dilatation of the cervix, (iv) the general condition of the patient, and whether she is a *primigravida* or a *multipara*, (v) the available facilities for treatment and the obstetrical experience of the doctor attending the patient.

The Types of Placenta Prævia.

As you all know there are three varieties of *placenta prævia*: central, marginal and lateral. There is often some confusion regarding the marginal and lateral varieties, and possibly a better

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on July 20, 1939, at the Women's Hospital, Crown Street, Sydney.

classification into degrees could be adopted, as is done by some writers.

In lateral *placenta prævia*, or *placenta prævia* of the first degree, the greater part of placenta is attached to the upper uterine segment and only the lower margin dips into the lower uterine segment.

In marginal *placenta prævia*, or *placenta prævia* of the second degree, the edge of the placenta reaches the internal os.

In central *placenta prævia*, or complete *placenta prævia*, or *placenta prævia* of the third degree, the placenta overlaps the internal os when it is closed, but may or may not cover it completely when it is fully dilated. It is rare to find a central *placenta prævia* which completely covers the internal fully dilated os, though, of course, this does occur.

In lateral *placenta prævia*, treatment by puncture of the membranes, and if necessary by the application of Willett's forceps, will probably give as good results to the mother and child as Cæsarean section. In special cases Cæsarean section may be preferable. In central *placenta prævia*, Cæsarean section is indicated in practically every case, and in the marginal variety more and more authorities are coming to advocate its use.

The Causes of Death.

Munro Kerr, in his book "Operative Obstetrics" (1937 edition), states that *placenta prævia* is responsible for somewhere about 5% of the total fatalities due to pregnancy and the puerperal state. He tabulates the causes of death as hæmorrhage, sepsis, shock, rupture of the uterus and pulmonary embolism.

It is important to consider the conditions with which we have to deal when treating *placenta prævia* by conservative methods and to contrast these with the conditions we encounter when employing Cæsarean section.

Treatment by Conservative Methods.

It must be remembered that 40% to 50% of the deliveries are premature. The contractions are apt to be weak and infrequent. This is probably due to the loss of blood, which makes the uterine muscles atonic, and it may predispose to *post partum* hæmorrhage. The cervix because of increased vascularity is very soft and friable, and on any provocation tears like wet blotting paper. In one case I had, in which a tear occurred, every time I put a needle in the cervix the suture material simply cut through and caused fresh bleeding. These tears are a frequent cause of the *post partum* hæmorrhage which may prove the final factor in a fatal case, and may come with spontaneous delivery. The lower uterine segment is unable to contract and retract properly, and so bleeding from the placental site is imperfectly controlled. Manual removal of the placenta is necessary in many cases, and the danger of sepsis is increased, because interference is usually unavoidable, and because of the anæmia and diminished resistance due to the loss of blood, and also because the placental site is low down and therefore very accessible to infection.

Treatment by Cæsarean Section.

The question must be asked, can Cæsarean section diminish these risks? I think it does, because Cæsarean section reduces to a minimum the loss of blood and shock from manipulation. It also prevents severe laceration of the cervix, and, therefore, *post partum* hæmorrhage from that source is avoided; and this may be a very important factor, if the patient has already lost much blood. It does away with the possibility of rupture to the uterus. By lessening the trauma to the cervical and vaginal tissues, which is inseparable from a delivery in which much manipulation has taken place, it leaves the tissues in a healthier condition and therefore diminishes the risk of sepsis and of pulmonary embolism.

Points to be Remembered in Treatment.

As I have stated before, the commonest causes of death in *placenta prævia* are hæmorrhage, sepsis and shock; therefore, it is of the utmost importance to plan a course of treatment which will reduce these factors to the minimum. This is still more important if Cæsarean section is contemplated as the method of treatment in the particular case. Hæmorrhage, sepsis and shock can be diminished if the following rules are strictly carried out: (i) Any patient who has any bleeding at all *per vaginam* in the last three or four months of pregnancy, should at once be admitted to hospital. (ii) No examination *per vaginam* should be made in the home. (iii) The vagina should not be packed except in very exceptional circumstances.

A vaginal examination to diagnose the cause of the bleeding may start a fresh hæmorrhage, which may be profuse.

Packing of the vagina is often inefficiently done, is usually painful, adds to the shock, causes damage to the vaginal mucosa and adds considerably to the risk of sepsis.

In the home the preliminary treatment should consist of a hypodermic injection of morphine, a firm abdominal pad and binder to try to push the presenting part down on to the placental site, and a firm vulval pad and bandage. Only in exceptional cases is vaginal packing indicated.

In hospital the diagnosis should be made, and preparations should have previously been made for a blood transfusion to be given as soon as possible to any patient who has lost a large amount of blood. In hospital, if the bleeding has been slight and if the pregnancy is of less than thirty-six weeks' duration, examination by inspection through a bivalve speculum to exclude any possibility of bleeding from local disease of the cervix is often preferable to examination by the finger. Efforts should be made to differentiate bleeding from accidental hæmorrhage, and an endeavour should be made to diagnose the type of *placenta prævia* present.

In a head presentation, if the head is fitting well into the pelvis the lateral type is more likely to be present. If the head is high, or if there is a mal-

presentation of the head, or if it is pushed to one side, the *placenta prævia* is more likely to be of the central or marginal type. The earlier in pregnancy the bleeding starts, the more likely is it to come from a central or marginal type of *placenta prævia*.

If on the patient's admission to hospital the bleeding has been slight and the pregnancy is of less than thirty-six weeks' duration, it may be permissible to adopt expectant methods; but if there are recurrences of slight bleeding it is preferable to perform Cæsarean section about the thirty-sixth week.

If on the patient's admission to hospital the bleeding has been severe, or if it is still occurring, or if labour pains are present, the ideal method of vaginal examination is with the patient under an anæsthetic in the operating theatre, with everything already prepared for blood transfusion and a Cæsarean section if this is decided upon. If the patient is exsanguinated it is important to give her a blood transfusion and to combat the shock by warmth and morphine before Cæsarean section is contemplated.

Munro Kerr points out that it is sometimes necessary in hospital to pack the vagina, and in such cases many patients succumb after removal of the packings, from hæmorrhage and shock due to the delivery. He states that in these cases there is much to be said for Cæsarean section before the packing is removed. If the *placenta prævia* is of the central or marginal type, this may be the safer procedure. Munro Kerr also states that as regards exsanguinated patients whose vagina has been packed carefully in hospital, the obstetrician will probably lose fewer patients employing Cæsarean section than by delivering them by ordinary vaginal methods. On the other hand, in cases in which the packing has been done at the patient's home and the patient has afterwards been transferred to hospital, the obstetrician should select the vaginal route of delivery.

Indications for Cæsarean Section.

Cæsarean section should be carried out after an examination following severe bleeding in the following circumstances: (i) If the os is closed. (ii) If the os does not admit two fingers and the placenta entirely covers the os. (iii) If the os is less than half dilated and if the placenta can be easily reached, if the fœtus is alive and viable and the patient demands a living child. (iv) In elderly *primigravidæ*. (v) In any case of pelvic contraction, or disproportion, or in any case likely to lead to obstructed or difficult labour. (vi) In certain extreme cases in which it is considered that vaginal manipulation might cause a further fœtal hæmorrhage. Continuous blood transfusion should be given in these cases during the operation.

Results.

The strongest argument for Cæsarean section at present is that by means of it the fœtal mortality is lowered approximately four times. Munro Kerr states that patients to whom it has been necessary to give a blood transfusion stand Cæsarean section much better than delivery by vaginal methods. He quotes a series of thirty patients treated by Cæsarean section, with only one maternal death and two fœtal deaths. Various American authorities record equally good results.

I have performed fourteen Cæsarean sections for *placenta prævia*. All the mothers lived, and thirteen of the children.

From July 1, 1935, till May, 1939, there were at the Women's Hospital 66 cases of *placenta prævia*; three patients were undelivered. No mothers died. The varieties of *placenta prævia* were: lateral, 13; marginal, 33; central, 14; not described, 6.

Thirty-nine infants died, including one pair of twins. The fœtal mortality was thus about 60%. The number of Cæsarean sections was 13 and the number of living children 8. The percentage of living children after Cæsarean section was 61. The infants which died were in the twenty-eighth, thirtieth, thirty-second and thirty-sixth weeks of pregnancy. The total number of infants which died under thirty-six weeks was 18. The total number of infants which died over thirty-six weeks was 21. As several of the latter infants were nearly at term, it is reasonable to suggest that many of them would have been saved if a Cæsarean section could have been performed with safety.

The Technique of Cæsarean Section.

In all the Cæsarean sections that I performed, the classical operation was used, and this incision would appear preferable, as in these cases the placenta is seldom encountered. The scar is more apt to be a weak one if the placental site has to be cut through. Further, I think that in the majority of cases the bleeding is less if the classical incision is made. However, recently there has been a tendency to employ the lower segment incision; one reason for this is that the bleeding point or area is accessible and can be sutured. However, results in time will show which is the more suitable incision. In my first few cases I was afraid that there might be severe hæmorrhage from the placental site, and so I packed the uterus and left the packing in for some hours. Lately, however, I have given up this procedure, although I think that it may be necessary in some cases, but not as a routine measure, especially if the operation is performed at a selected period and not as an urgent measure.

Reports of Cases.

TONSILLECTOMY À CHAUD IN QUINSY: REPORT OF THIRTEEN CASES.

By ERIC P. BLASHKI, M.C., M.B., Ch.M., F.R.A.C.S.,
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W. S. THACKER NEVILLE published his experience of tonsillectomy as a radical cure for quinsy in *The Journal of Laryngology* in 1936. There have been numerous

references to this operation in European literature both before and since that time. It is not suggested that tonsillectomy should be undertaken in every case of peritonsillar abscess; but in complicated cases it is a good and efficient method.

Hereunder are brief histories of thirteen patients for whom I have performed tonsillectomy *à chaud*. The quinsies have been accompanied by the following complications: severe trismus requiring anæsthesia to open the mouth, retrotonsillar hæmorrhage after a quinsy was opened in the usual way, quinsy loculated because of previous attacks, quinsy in a partly removed tonsil and laryngeal œdema.

With proper anæsthesia administered through a Magill pernasal tube the operation is quite easy, although care is required in dealing with the friable tissues. I have habitually sewn in a pad of iodoform gauze by means of a stitch through the faucial pillars.

It would appear that the theoretical objections to this operation are not supported by experience. It is, in fact, a safe operation when performed under proper conditions, and gives complete permanent relief. There was one fatality. A man, aged sixty-seven years, was a very bad anæsthetic risk, but had to be operated on because he had a retrotonsillar hæmorrhage and œdema of the larynx. He died from heart failure after being removed from the operating theatre.

Clinical Records.

CASE I.—Nurse A. was first seen in November, 1935. She had had quinsy previously and had had an incomplete tonsillectomy. The present attack was severe. The remaining tonsillar tissue was removed and she made a normal recovery.

CASE II.—The patient, U.K., was seen in 1937 when suffering from quinsy. The quinsy was opened in the usual way, and bleeding behind the tonsil continued for two days, causing an increasing mass. Tonsillectomy was followed by a normal recovery.

CASE III.—Nurse B. was first seen in November, 1937. She had had quinsy for three days, and incomplete relief only had been given by the usual opening of the quinsy. After two days tonsillectomy was performed.

CASE IV.—The patient, J., first seen in November, 1937, had been suffering from quinsy for three days. Trismus was very pronounced and considerable œdema of the hypopharynx was present. Tonsillectomy was performed and recovery was uneventful.

CASE V.—The patient T., first seen in November, 1937, was suffering from a third attack of quinsy; this had already lasted for two days. Tonsillectomy was followed by an uneventful recovery.

CASE VI.—The patient N., first seen in November, 1937, was aged sixty-seven years. He had had severe quinsy for five days, with swelling of the larynx. After the quinsy had been opened in the usual way the swelling increased. Severe retrotonsillar hæmorrhage was also occurring. The patient was a bad operative risk, as his heart was diseased, and he had to be moved to hospital. Operation was performed, but he died from heart failure after being taken from the operating theatre.

CASE VII.—The patient W., when first seen in December, 1937, had had a sore throat for seven days. The quinsy had been opened before his admission to hospital, but had become worse. Tonsillectomy was followed by an uneventful recovery.

CASE VIII.—When the patient G. was seen in February, 1938, the quinsy had already burst. Partial tonsillectomy had previously been performed. A massive swelling was present in the throat. Tonsillectomy was followed by an uninterrupted recovery.

CASE IX.—The patient H. was admitted to hospital in May, 1938, and at that time was very ill. Quinsy had been present for seven days and was complicated by mastoiditis. Tonsillectomy was performed and a mastoid operation was performed eight days later. The patient made continuous uninterrupted progress.

CASE X.—The patient J.C., when seen in July, 1938, had suffered for four days from severe quinsy with œdema of the larynx. Tonsillectomy was followed by rapid recovery; the œdema was gone in twenty-four hours.

CASE XI.—The patient C.J., first seen in March, 1939, had had quinsy ten years previously. The present attack had lasted for two days and was severe. Tonsillectomy was followed by an uneventful recovery. The patient was in hospital for three days.

CASE XII.—The patient K., when seen in May, 1939, was suffering from acute bilateral quinsy. Tonsillectomy was followed by an uninterrupted recovery.

CASE XIII.—The patient had severe quinsy and had had a previous attack. Tonsillectomy was performed, and the patient left hospital in four days.

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TORSION OF THE OMENTUM SIMULATING APPENDICEAL ABSCESS.

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Clinical Record.

A.C. was a male, aged twenty-eight years, who was admitted to the Royal Prince Alfred Hospital on September 19, 1939. He had been perfectly well until four days prior to admission, when he had a severe attack of lower abdominal pain, most pronounced in the right side. This remained localized to the right iliac region and was of a persistent, nagging character. Vomiting commenced soon after the pain occurred. There were no other symptoms. Both the pain and vomiting gradually subsided during the next three days. On the fourth day after the onset these symptoms suddenly recurred with increased intensity, at which stage he was admitted to hospital. He had had no previous illnesses or operations.

On his admission to hospital his temperature was 99° F., his pulse rate 84 per minute, and respirations numbered 24 per minute. The tongue was furred. Abdominal examination revealed localized tenderness in the right iliac fossa, with muscle guarding. In the region of the caecum a large mass was readily palpable, some three inches in diameter, fixed to the posterior abdominal wall, tender to palpation and dull on percussion.

A diagnosis of appendiceal abscess was made and conservative treatment was commenced. After three weeks of uninterrupted progress, the patient being for the most part symptomless and apyrexial, the mass was still present, a little smaller than at first, but now quite mobile. It was decided to explore the abdomen. This exploration revealed a twisted mass of the great omentum, two to three inches in diameter, firmly adherent to the anterior aspect of the caecum. The appendix was not involved in this mass. The omentum was separated from the caecum and the appendix was removed. The patient's recovery was uneventful.

Discussion.

This case was interesting rather than instructive. An identical condition would still be regarded by us as an abscess. It would be impossible to estimate how long the mass would have taken to disappear.

Reviews.

THE SCIENTIFIC BASIS OF NUTRITION.

NUTRITION is a topic of the day. There has lately been a spate of books on the subject and of journal articles almost *ad nauseam*. This outburst of publication has somewhat dulled the enthusiasm of medical readers, for so much is mere repetition. And, for all the new knowledge, the direct therapeutic applications have been comparatively few; but how important those few!

A new edition of E. V. McCollum's "The Newer Knowledge of Nutrition" is an event.[1] Ten years have passed since the previous edition appeared, and much has happened in the time. Moreover, Professor McCollum, now head of the biochemistry department in the School of Hygiene and Public Health at the Johns Hopkins University, has long held a world-wide reputation as a foremost worker in nutrition research. He has grown up with the science.

In the early years of this century there were great advances in the knowledge of nutrition, founded on the work of Liebig, Wohler and Prout in the early part of the nineteenth century, and of Bernard, Voit and Rubner in the latter part. More recently, Atwater, Lusk and Chittenden have contributed to the knowledge of food values and calorimetry.

Then came thrilling days, for the knowledge of vitamins, evolved from the early labours of Eijkman, Hopkins and Funk, opened a new era. It was a startling discovery to find that a diet of pure proteins, fats and carbohydrates, although of adequate caloric value and suitably balanced, failed to sustain the healthy life and growth of laboratory animals. It was a new problem, and its solution established a fresh principle in nutrition: the importance of the very little.

So revolutionary was the new knowledge that it was no surprise to see much of McCollum's first edition—an infant of 200 pages—devoted to a review of the early work on vitamins. McCollum elaborated the point that the chemical analysis of foodstuffs could not reveal the whole story of nutrition, and that biological analysis was the great essential. At that time, following Funk's enunciation of the vitamin hypothesis, McCollum and his co-workers demonstrated that there were two deficiency diseases, xerophthalmia due to lack of the fat-soluble *A* factor, and beriberi due to lack of water-soluble *B*. McCollum then held the view that pellagra, scurvy and rickets were all diseases due to an unbalanced type of diet and not to lack of any accessory factor.

The second edition of McCollum's work was published in 1922 and was dedicated to Dr. Eijkman, in appreciation of his being the first worker to produce a deficiency disease in laboratory animals. The book reported the result of extensive experimental work, especially on rats; nutrition studies were best carried out on such short-lived omnivorous animals.

It is the fifth edition of the book which has just been published this year. It is a sturdy volume of 700 pages, and is a fascinating review of all the important studies in nutrition over the past thirty years or so. Dr. Elsa Orent-Keiles and Dr. Harry G. Day, associates in Professor McCollum's department, are joint authors.

The book is well planned. A brief historical review is followed by a discussion on the functions of carbohydrates, lipids and proteins as dietary essentials. The studies of the proteins are valuable, for the major problems of the effects of protein deficiency, and especially of specific amino-acid deficiency, are not yet completely settled. In comments on the effect of the sulphur-containing amino-acids on the growth of epidermal tissues, recognition is given to the work of Brailsford Robertson and Marston, of the Nutrition Laboratory of the Australian Council of Scientific and Industrial Research. Reference is also made to the observations of Clements on the influence of proteins in the diet on the incidence of tropical ulcer.

Then comes the story of the inorganic salts. The need for adequate supplies of calcium, phosphorus, magnesium, potassium, iodine and chlorine has been known for years. It is the function of "trace" inorganic elements in animal and plant nutrition that now interests physiologists. Copper, for instance, is required to promote the utilization of iron in hæmoglobin formation. Cobalt deficiency is related to the occurrence of "coast disease" in sheep in some parts of Australia, and McCollum discusses the finding of Marston and Lines that the addition of pure cobalt salts to the sheep's diet prevented the disease.

The section on vitamins is comprehensive and is clearly told. Well that it is, for here the "newer knowledge" grows amazingly. Will the alphabet stand the strain? To date we have vitamins *A*, *B* (the *B* complex has six factors, or more), *C*, *D*, *E*, *F*, *G*, *H*, *K* (we learn that the anti-hæmorrhagic vitamin also has an "anti-gizzard-erosion factor") and *P*, and factors L_1 and L_2, *Y*, *W* and *U*. With so many accessory food factors we may wonder at any room being left in the meal for just plain food!

McCollum writes an interesting chapter on diet and the teeth. He notes that, whereas untreated diabetes predisposes to oral sepsis and dental decay, dietetic control of diabetes in children arrests dental caries. The high-fat low-carbohydrate diet is thought to provide the reason. The effect is not due solely to the increase in vitamin *D*, for olive oil—containing "no known vitamin"—protects against caries to some extent. McCollum predicts that the factors causing caries-susceptibility will soon be disclosed. "Nutritional research has scored a great achievement in the field of dental science."

McCollum has covered a wide field. Appetite perversions, such as infantophagia in rats and sows fed on faulty diets, are noted. In chick raising, "perplexing problems", such as cannibalism, feather picking and toe picking, may arise from improper feeding. Nail and wire eating cause considerable mortality among cattle in America. In human subjects perverted appetites often arise from "complex psychic processes". Some food faddists "get pleasure in denying themselves the more appetising foods"; they achieve merit from self-denial.

For too long the knowledge of nutrition has been restricted mainly to physiologists and biochemists. Today the wider application of the sound principles of nutrition is urgently needed. On every hand is evidence of unsatisfactory dietary habits, among the rich as well as the poor. The welfare of communities depends so much on their food and their cooks. To correct wrong food habits in the homes is a slow process, depending to a great extent on the steady educative work of family physicians. The physician seeking information on the basic principles of nutrition will find McCollum's book a stalwart friend.

[1] "The Newer Knowledge of Nutrition", by E. V. McCollum, Ph.D., Sc.D., LL.D., E. Orent-Keiles, Sc.D., and H. G. Day, Sc.D.; Fifth Edition, entirely rewritten; 1939. New York: The Macmillan Company; Australia: Angus and Robertson. Demy 8vo, pp. 709, with illustrations. Price: 18s. net.

REGIONAL ANATOMY.

THE fourth edition of Professor T. B. Johnston's "Synopsis of Regional Anatomy" differs little from the previous edition.[1] New matter has been added to the chapter on the central nervous system. It is a pleasure to find this section of anatomy adequately dealt with in sixty-three pages. The author adopts an amusing subterfuge, in the preface, to stress the importance of dissections. The student is strongly urged to use the dissected part for revision, with the help of the book. There are no illustrations, except the diagrams of the central nervous system.

The book is adequate for revision in preparation for any examination in anatomy, and can be highly recommended.

[1] "A Synopsis of Regional Anatomy", by T. B. Johnston, M.D.; Fourth Edition; 1939. London: J. and A. Churchill Limited. Demy 8vo, pp. 483, with illustrations. Price: 12s. 6d. net.

The Medical Journal of Australia

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TOWN AND COUNTRY PLANNING.

At first sight the casual observer may think that such a subject as town planning is no concern of the medical profession, but is the province of such people as architects, surveyors and engineers. A moment's thought will show that this is not so. Town planning was recognized to be necessary when the civilized world was caught in the industrial development of the nineteenth century, though as long ago as in Roman times colonial towns and military stations were carefully planned to meet the requirements of the times. The growth of large cities, consequent on the coming of the steam engine and the locomotive and later of the motor car, brought in its train a host of evils, of which overcrowding and slums were the outward and visible sign. Captains of industry were for the most part blind to these evils, but there arose social reformers, men of understanding and human sympathy, who tried to clear them away. Overcrowding and poverty cause disease, and naturally the development of preventive medicine as a practical method and as an ideal has given medicine a permanent interest in town planning and in its logical extension, country planning, as in every other measure calculated to promote the health, happiness and well-being of the people. This has been shown at the centre of British medical thought, the Royal Society of Medicine, before whose Section of Epidemiology and State Medicine G. L. Pepler has recently read a paper on town and country planning.[1]

Pepler's paper is a cold and academic statement of the development of town planning in England. It should be read in conjunction with such a paper as that of E. P. Dark on property and health, published in this journal last March. Pepler states that the aim of planning schemes is broadly to secure that the land in the area shall be used to the best advantage of the community as a whole, with due regard to health, convenience and amenity, and to the rights of property. We are prepared to accept this definition if it is understood that the importance of these considerations is in the order stated, the greatest first and the least important last. While we do not propose to traverse the history of the town planning movement nor to discuss its application in detail, we would refer to the work of Ebenezer Howard, who in 1898 published his important book, "To-morrow: A Path to Real Reform". This work was republished in 1902 under the title, "Garden Cities of To-morrow". Howard, it is understood, got the germ of his idea from the city of Adelaide. He studied the congested living and working conditions in London and saw how much time and energy people wasted in travelling to and from their work. He believed that the only way in which the evils of great cities might be mitigated was to commence a redistribution of the population by planning communities of thirty or forty thousand people in different parts of the country. Thus he applied the principle of his "garden city". He held that an entirely new town should be built, that dividends payable to the promotors should be limited, that the size of the town should be limited, that factories should be so placed that workers should have full enjoyment of the open air, that the expense of the town should be

[1] *Proceedings of the Royal Society of Medicine*, August, 1939.

met by rent, that provision should be made to prevent overcrowding, that the town was to be built on a regular plan, and that houses should be provided for all classes of the community. Finally, he contended that other towns should be built beyond the agricultural belt on similar principles. The two towns, Letchworth and Welwyn, built on these principles, have shown that Howard's ideas are feasible. Letchworth, founded in 1903, was planned on an acreage of 4,595, the average price being £44 an acre. On this land were built 3,662 homes and 111 factories; the population was 15,000. Welwyn was founded in 1919; the acreage was 3,000, it had 3,371 homes, 32 factories and a population of 10,000. This type of scheme is well suited to new factories and industries. Whether it can be applied to the huge cities of the world is perhaps open to argument. In this regard it must be remarked that whole populations can be moved from cities in war time; it should be possible to persuade the people and their governments that health and decent amenities of life are as important in peace as proper precautions in war time.

Housing schemes have been put into practice in many places. They are not always effective because workers are moved away from their work; they have to pay more rent in the new home than they did in the old and they have to pay travelling expenses to and from their work. Without some subsidy or decrease in rent of the new home, or without an increase in the wages of the working man, no rebuilding or housing scheme can be successful. If a worker has to pay a rent disproportionate to his wage, he will take the excess amount from what he ought to spend on his food, and his last state will be worse than his first. True though these statements are about what ought to be done, it is equally true that a great deal more could be done under present conditions than is attempted. South Australia was the first Australian State to pass town planning legislation. Later Western Australia followed with a somewhat similar act to that passed in New Zealand in 1926. During the last ten years much good work has been done in Western Australia, and the results have justified the introduction of the act. Though Victoria enjoys no statutory powers to control planning, a comprehensive report was issued by a royal commission appointed by the Government in 1923; the recommendations of this report would serve as a useful guide for future legislation. In New South Wales planning is in the hands of local authorities under the *Local Government Act*; the cities of Sydney and Newcastle have separate acts. These acts, however, are not used to the best advantage. Legislation needs to be introduced to give statutory force to town planning measures.

In this discussion we have used the words town planning to cover not only the erection of new buildings in unsettled areas, but rebuilding of areas unfit for human habitation. The medical practitioner is concerned with both these aspects. Pepler stated at the Royal Society of Medicine that planning can take us only one step towards the securing of good conditions, as it is not the function of planning schemes to provide homes or workplaces, and they do not create development. "All they can do is to provide that if and when development takes place it shall, as far as possible, be of the right kind and in the right place." The medical practitioner should take more than this one step since his sphere embraces every activity of man—his welfare in work and leisure, in peace and in war. The prevention of poverty and the promotion of rude health are both his provinces. He must try to awaken the public conscience. If Australia were an enlightened community it would not be possible for many thousands of pounds to be spent in the remodelling of the stately parts of a city (as has been done in more than one place) while within a few miles of the remodelled area people are forced to live in wretched hovels with insufficient air and light and with a backyard in which it would be impossible to swing the proverbial cat.

Current Comment.

THE INFLUENCE OF EXERCISE ON NUTRITION.

SINCE the inauguration of a campaign for national fitness in Great Britain and in other countries, the medical Press has oftentimes stressed the importance of combining the several factors necessary for real physical fitness. Suitable exercise, however

adequate, cannot be fully effective unless accompanied by proper nutrition, and *vice versa*. But, although it has been frequently assumed that some relationship does exist between physical activity and nutritional response, little actual experimental work has been done towards establishing the significance of this relationship, and what efforts have been made have been directed mainly from the standpoint of calorie requirements. It appears that no adequate investigation has been conducted regarding either the relationship of physical activity to the vitamin requirement of laboratory animals, or the effect of vitamin intake on the inclination of such animals to exercise. Nearly twenty years ago Yoshiue reported that vitamin *B* deficient rats which were exercised died before developing the muscular paralysis typical of this deficiency. Black in 1924, on the other hand, expressed a belief that lack of exercise accelerated and accentuated the ill-effects of diets deficient in vitamin *B*. He cited the fact that beriberi most frequently occurred in institutions and in those situations where a fixed diet and some degree of confinement were usually maintained. Keith and Mitchell in 1923 claimed that exercise distinctly hastened the appearance of symptoms of vitamin *A* deficiency and hastened the death of young animals receiving diets deficient in vitamin *A*.

Guerrant and his colleagues,[1] working at the Department of Agricultural and Biological Chemistry, Pennsylvania, have recently investigated the influence of exercise on the development and well-being of the growing rat in the presence and absence of vitamin *A*, and similar studies are under way with reference to other vitamins. These experiments show that under comparable conditions of experimentation, less food was consumed, smaller increases in body weight were made and less severe symptoms of vitamin *A* deficiency developed when the animals were forced to exercise, than when they were allowed to exercise voluntarily or when confined in the usual type of cage. Although animals maintained under the condition of forced exercise exhibited the greatest efficiency of food utilization, they voided the greatest number of fæcal pellets, thus indicating the beneficial effect of exercise on intestinal motility. Animals maintained under the condition of voluntary exercise, which received daily allotments of vitamin *A*, were more active physically than litter mates which did not receive the vitamin *A* supplement, indicating a further relationship between completeness of diet and physical activity.

A SIMPLE TEST OF SENSATION IN TRANSVERSE LESIONS OF THE SPINAL CORD.

SENSATION tests have the drawback that they are subjective in nature, but in certain conditions, particularly in transverse lesions of the spinal cord where the detection of the segmental level is important, they are of great value. Robert Wartenberg[1] revives interest in the "numeral test", which consists simply of tracing on the patient's skin with a pointed but not sharp instrument the ordinary numerals, that is 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. The figures are "written" parallel to the body axis; and while any portion of the body may be employed, the trunk is the most useful. They are readily recognized by patients, even though the size as outlined be small, and this method is valuable therefore in determining the level of a lesion of the spinal cord. Wartenberg points out that the afferent tracts in the posterior columns probably suffer damage early when compression of the cord occurs, and also sustain the greatest degree of injury. This is said to be connected with the fact that the posterior afferent tracts are phylogenetically younger than other corresponding structures and also with the arrangement of the tract fibres in the cord which affords a greater protection to the antero-lateral fibres soon after they enter the cord and which therefore saves them from early injury. If then the posterior columns are likely to show damage earlier than the antero-lateral columns, it is important to apply sensory tests which are specially designed to detect lowering of their functions, that is those of recognizing touch, pressure, posture, vibration and the space qualities of touch. Some of these varieties of sensation cannot be subjected to test, for example, in the trunk, but the space sense of the skin may be tested anywhere. It is, however, necessary to have some standards, and these vary greatly in different parts of the body, whereas the tracing of numbers is easily comprehended and very simple to apply. The author remarks that though this test is mentioned in only a few of the neurological text-books, it should be more generally used. He quotes a case in which paraplegia in flexion was present, and in which the numeral test indicated a definite level, in spite of the fact that other forms of sensation were less disturbed. These findings led to the suspicion that the lesion lay on the dorsal surface of the spinal cord, and this was confirmed at operation. There is still a general impression that all neurological examination is time consuming and complicated, so that it is useful to remember methods which may be applied quickly, which need no special appliances and which are accurate.

TUBERCULOUS INFECTION IN AN INDIAN TOWN.

SOME interesting information emerges from the findings in a recent tuberculosis survey of a southern Indian town by P. V. Benjamin, M. C. Verghese, K. T. Jesudian and C. E. Varkkey.[2] The town of Saidapet, which has a population of 33,000, is six miles from the business centre of Madras and is connected to it by electric trains and motor

[1] *Journal of Nutrition*, Volume XVII, 1939, Number 5, page 473.

[1] *The American Journal of the Medical Sciences*, September, 1939.

[2] *The Indian Medical Gazette*, September, 1939.

omnibuses. The basic occupations are hand-loom weaving, hand dyeing, pottery making, *jutka* making, goldsmithing, and laundry work. It is regarded by the investigators as a typical southern Indian town in its economic, social, hygienic and religious customs and methods of living. The members of 900 families (3,309 persons), occupying 553 houses, were tested by means of an intradermal injection of a one in five hundred suspension of old tuberculin, 58·1% reacting. The first feature of interest is the percentage of adults (69·8) infected as compared with children under the age of fifteen years (41·2). Figures obtained by a series of von Pirquet tests carried out by Benjamin in 1938 in Indian villages were 30·8% and 8·2% respectively. "It is to be expected that the percentage of positives in a town like Saidapet close to Madras would be higher than in small towns up-country."

There was no appreciable difference between the numbers of female and male reactors. Occupation appeared to have an important influence on the infection rate; the highest percentage of reactors was found among weavers, *beedi* makers and goldsmiths. Poverty did not seem to be associated with any higher rate of infection.

Tuberculosis is commonly said to be "the poor man's disease", but the figures obtained so far in Saidapet definitely contradict this idea and in fact would generally seem to point the opposite way.

The most striking feature was the variation of the infection rate in different streets. This variation existed, whatever method of grouping was adopted. "If we examine according to general infection-rate, according to economic condition, according to living space, according to contact with cases of tuberculosis, the rate varies in different streets." These workers think that the higher percentage in certain streets results from the communal use of houses by several families. If a house is too large for one family, part of it is sublet to other families. There is much mingling, "and the effect is one large family". If one person in a house becomes affected with tuberculous disease, all occupants of the house are contacts. In streets where the infection rate is lower, the houses are occupied each by one family, and they are separate. In the streets where the infection rate is higher, the houses are joined together, a condition that further tends to increase the numbers of contacts of any individual patient suffering from tuberculosis. The suggestion is that "it is not mainly the economic factor or the size of the house or the sleeping accommodation, but the method of living, which is the principal cause of spread of infection".

In endeavouring to attach the correct values to these findings one must bear in mind that they concern infection rates and not disease rates. No doubt Benjamin and his collaborators are correct in their opinions concerning the reasons for high rates of infection in individual streets; but they are wrong if they assume that rates of infection and disease are in a constant proportion. It may well be that the incidence of disease, as distinct from infection, is increased by poverty and cramped living conditions in Saidapet as in other places. Unless proof to the contrary can be found, we may assume that the same general rules regarding the spread of tuberculous disease are applicable to Indian towns as to all comparatively recently infected towns in other countries.

CARCINOMA OF THE ALIMENTARY TRACT.

RECENTLY reference has been made in these pages to the difficulties existing in distinguishing between gastric ulcer and gastric carcinoma. An even more important aspect of the problem of cancer is that which has been dealt with in a recent discussion of the subject in St. Louis during the annual meeting of the American Medical Association. Andrew B. Rivers drew special attention to the importance of cancer as a cause of chronic dyspepsia.[1] In his summing up he referred particularly to the need for enlightening the public with regard to the hazards of non-professional treatment of dyspepsia after the age of forty-five years. Really the position is becoming very difficult. Doctors are very averse to being party to fostering hypochondriasis. They believe that the healthy person should be completely unaware of the physiological processes going on within his body, and yet they are compelled to draw attention to the very serious conditions that may underlie common symptoms, which may be considered by many people insufficient to lead them to seek skilled advice. As it is, every paper and magazine, either in its letterpress or advertisements, draws attention to this very fact, and when the medical profession suggests that it is only skilled and well-equipped diagnosticians who are competent to deal with such problems, its members are often accused of self-interest. It would be interesting to know how many self-diagnosed and self-treated persons have been later, and often too late, found to be suffering from alimentary carcinoma.

Rivers analysed an imposing series of cases in his review—no less than 4,656—the material for the study being derived from patients attending the Mayo Clinic complaining of indigestion. In patients below the age of twenty-four years the incidence of cancer of the alimentary tract was almost negligible, but between the ages of twenty-five and thirty-nine years it began to assume some importance, for 3·5% of the men observed were found to have a cancer either in the stomach or colon. Over the age of forty years the incidence rises noticeably. Indigestion due to carcinoma was twice as frequent in the late forties as in the early moiety, and thereafter the frequency steadily rose. Actually among the patients in the group studied, all of whom were, it must be remembered, actually seeking relief of digestive symptoms, from the age of sixty to sixty-four years 21·5% were found to be suffering from cancerous dyspepsia, from sixty-five to sixty-

[1] *The Journal of the American Medical Association*, September 23, 1939.

nine years 31%, and over seventy years 44%. Though cancer of the stomach or bowel is known to be more common in general in men than in women, when the more advanced ages are reached there is little difference between the sexes.

The conclusions reached by Rivers are no novelty, but they deserve to be stressed not only because of the authority of their source, but also because of their paramount importance. At the age of forty-five years cancer begins to become a relatively frequent cause of indigestion. When we realize that a primary complaint of dyspepsia among men of the seventh decade of life in this series meant that two-fifths of these had cancer, it will be seen how the risk grows with age. Men enter the danger period some five to ten years earlier than women, and Rivers insists that an exhaustive search for carcinoma should be made whenever the suspicion may justly be entertained. The stomach is the organ most frequently affected, and next to that comes the pancreas. Colonic cancer is, of course, not often a cause of dyspepsia *per se*, but it appears to be increasing somewhat in frequency, or at least its age incidence seems to be affecting more and more the earlier periods of life.

C. Rosser and J. G. Kerr took up this aspect of the cancer problem at the same meeting and pointed out that observers unite in publishing greater numbers of cases of cancer of the colon in persons under middle age.[1] In a consecutive series of 100 cases these authors found that 7% of patients were under thirty years of age, and 17% under thirty-six. Youth is unfortunately not an advantage in this serious disease, for, while the better physical condition of the patients permitted the carrying out of more radical measures without undue risk, the lesion was found to spread more rapidly and to cause symptoms of short average duration. This was thought to be due to some relative ineffectiveness of the natural barriers to invasion in the younger patients.

Several other surgeons discussed these papers and agreed that while it was difficult to explain some of the statistical results, there was no doubt as to the need for propaganda with regard to alimentary carcinoma. Any middle-aged person who experiences persistent discomfort referable to any portion of the digestive tract should be regarded as a potential subject for carcinoma, and full investigation should be made as soon as practicable. The outlook in some cases is better than in others. In carcinoma of the colon it is reasonably favourable if the lesion is not advanced; in cancer of the stomach it is notoriously bad, though attention should be drawn to the leading article on this subject in the issue of December 9, 1939. We are perhaps tired of reading *clichés* concerning the value of early diagnosis; nevertheless early diagnosis gives the sufferer from this form of neoplastic disease a chance for his life—perhaps a slender chance—but this is preferable to the revelation that it is too late for anything useful to be done.

[1] *Ibidem.*

GOVERNMENT MEDICAL SERVICE IN TASMANIAN COUNTRY DISTRICTS.

THE report of Dr. B. M. Carruthers, Director of Public Health of Tasmania, for the year ended December 31, 1938, contains some interesting information in regard to the full-time medical service in sparsely populated areas recently instituted by the Tasmanian Government. This service was started in 1938. The remuneration of the medical practitioner, who serves a prescribed area, is £700 *per annum, plus* £50 house allowance; he also receives sixpence a mile travelling allowance. The practitioner has certain stated hours during which he is on duty. If he is needed between his hours of duty he is allowed to make a charge of £1 1s. for each visit paid, and of 10s. 6d. for each attendance at the surgery. He is allowed to charge midwifery fees for patients who do not elect to go to the midwifery hospitals provided. He is allowed one month's holiday per year and also a month in which to attend post-graduate courses. These statements are taken from the evidence given before the Royal Commission on National Health Insurance last year by Dr. J. F. Gaha, Minister for Health of Tasmania.

In his report, Dr. Carruthers has a table setting out the date of the commencement of service in each of the nine districts already being served, the total number of attendances on patients in each area, and the mileage covered in each instance. Thus at Esperance the service started on March 11, 1938; there were 2,055 attendances on patients, and the mileage covered was 6,121. It is not clear whether "attendances upon patients" means visits to patients in their homes or whether it includes consultations at the surgery. It must be presumed that the latter is meant. If the length of time during which the services have been in operation are added together and the number of attendances in each area are added together, we find that on an average each medical practitioner attended 5·61 patients a day (including Sundays and holidays) and travelled 20·22 miles to make these attendances. The value of the service to the people living in these areas is at once apparent. Unfortunately the information given by Dr. Carruthers does not go quite far enough. He does not state the population of each area, and thus we are unable to form any estimate of the average number of attendances per person *per annum*. Nowhere in Australia has it been possible to obtain any exact information on the morbidity of the people. Admittedly the people in sparsely populated country areas are not representative of the community as a whole, but if Dr. Carruthers in a future report would give fuller information, including such services as midwifery and workers' compensation practice, he would be doing a service to the medical profession of the Commonwealth.

Abstracts from Current Medical Literature.

DERMATOLOGY.

Sulphanilamide in Treatment of Pyogenic Dermatoses.

ALBERT STRICKLER AND MAURICE J. STONE (*Archives of Dermatology and Syphilology*, August, 1939) briefly survey the results of the treatment of certain types of dermatoses with sulphanilamide. They point out at the commencement that good results have been obtained in *lupus erythematosus*, which may be at times of streptococcal origin. The authors also draw attention to the undesirability of employing the drug when local applications are effective. They prefer to use sulphanilamide in dermatoses which may become fatal or in those noted for their chronicity. Three groups of cases are described, the results being satisfactory in each group. There is no attempt to confine the results of therapy to streptococcal infections—many of the cases described are staphylococcal in origin. The groups mentioned are *impetigo contagiosa neonatorum*, secondary pyogenic dermatoses (by which the authors refer to those pyogenic eruptions which so frequently complicate a widespread dermatitis), and *sycosis vulgaris* of the more resistant type. Results varying from complete cure to considerable improvement are described.

Recurrent Ulceration of the Buccal Mucosa.

A. GIRDWOOD FERGUSSON (*The British Journal of Dermatology and Syphilis*, August-September, 1939) describes a case of recurrent ulcer of the mouth and discusses the literature of the condition. Briefly, in a female, aged seventeen years, the lesions commenced as small, painless, hard swellings of the tongue, which soon became painful and tender, enlarged, and broke down to form indolent ulcers. The inside of the cheeks and lips also were affected. Healing of some lesions followed. Remissions and relapse, good general health and absence of family history were other features. There was no coincident affection of the genital mucosa. Slight cervical glandular enlargement was present. Teeth and tonsils were healthy. The Wassermann and von Pirquet tests elicited no reactions. Biopsy and bacteriological examination provided no positive help. X ray contact therapy (500 *r* units) caused rapid but temporary healing. This description closely follows that of other investigators, who also mention slight fever and the crateriform nature of the ulcers, which is caused by the separation of a central necrotic plug. The genital mucosa is occasionally involved. Several theories have been advanced by others to explain the cause of the condition, amongst which are: (i) that it is an angioneurotic condition allied to urticaria and prurigo associated with functional nervous disturbances; (ii) that it is paratuberculosis analogous to the tuberculides, a condition present with chronic dyspepsia; and finally (iii) that the lesions are related to thyreoid deficiency. All investigations up to the present have failed to reveal a bacterial cause, all organisms being secondary contaminants. The disease should be distinguished from aphthous stomatitis particularly—this latter is a far more superficial affection. Treatment, apart from X ray therapy, has so far been of little value in relieving the condition.

Classification of Lupus Erythematosus.

ERICH URBACH AND CARMEN C. THOMAS (*The British Journal of Dermatology and Syphilis*, August-September, 1939) suggest a modern classification of *lupus erythematosus* (which they prefer to call by the less confusing term erythematodes). The classification is based both on a review of the literature concerning this well-known dermatosis and on the results of personal experience with varied types of the disease, of which several cases are reviewed in considerable detail. The scheme of classification is as follows: (*a*) chronic group: discoid erythematodes, disseminated erythematodes; (*b*) exacerbated group: discoid erythematodes with acute or subacute exacerbation, disseminated erythematodes with acute or subacute exacerbation; (*c*) acute group: acute erythematodes, subacute erythematodes. The last group consists of those acute cases which commence *de novo*, while the terms acute and subacute are used only to designate the duration and not the ultimate outcome of the disease. The clinical and gross pathological features of each type are briefly set out, followed by the case histories illustrative of several varieties. The article concludes with a brief comment stressing the features on which the classification is made. A limit of three months is taken as the boundary between acute and subacute varieties. From a prognostic point of view genuine acute and subacute varieties almost invariably terminate fatally, whereas the exacerbated forms have a better prognosis, particularly the discoid type. In conclusion stress is laid upon the ætiological importance of light and of porphyrin. Regarding the latter, it is pointed out that this substance may be found in considerable amounts in the fæces when the blood and urine are normal.

Chlor-Acne in Railway Workers.

H. HALDIN-DAVIS (*The British Journal of Dermatology and Syphilis*, August-September, 1939) describes an outbreak of an acneiform eruption in railway workers employed in indoor wiring of electrical circuits. The term chlor-acne is used to describe a follicular comedone and pustular eruption due to the action of chlorine on the skin. It is often found among workers concerned in making electrical apparatus, due to the handling of an insulating material made of chlorinated naphthalene. The eruption affects the exposed areas which contain sebaceous glands. In the outbreak described, a peculiarity found was that the condition occurred in workers who were merely engaged in making electrical circuits, using wire insulated with the offending material, known in the trade as "perna" (perchlor-naphthalene). The men employed were working in an enclosed signal-box. Others similarly engaged outside were unaffected. It was found that the wires were pulled through conduit pipes above the men's heads, and this resulted in a fine dust being formed from the insulating material, which fell on their heads, necks and up their forearms. The presence of the eruption on the forearms distinguished the disease from ordinary acne. Efficacious prophylactic measures consisted in the application of a thin coating of "Rosalex", a proprietary substance, to the exposed areas before work, and washing with "Westrosol" soap (a 2% solution of trichlorethylene) at the end of the day.

Surface Radium Therapy by a Radio-Active Ointment.

ALBERT EIDINOW (*Proceedings of the Royal Society of Medicine*, April, 1939) discusses radio-active ointment as an agent in surface radium therapy. He points out that the use of radium in metal plaques has the disadvantage that the area of skin treated is confined to the shape and size of the plaque, and as a result only a defined and regular pattern is treated. With radon dissolved in oils and wax it is possible to use weak doses of β and γ rays on an irregular skin area and to apply a uniform dosage to the whole area. Radon is soluble in olive oil and petroleum jelly, but the trouble of localizing the ointment and of preventing melting and spread over the skin surface has made its application difficult. The high temperature of the melting point of many of the wax solvents causes the liberation of fine air bubbles and the radon is lost from the wax. Alton and Southern showed that petroleum jelly was an excellent solvent and that less than 10% of energy was lost when radon was dissolved in melted petroleum jelly at 40° C. The author adds that the use of envelopes made of "Cellophane" solved the problem of the ointment and prevented it from melting and running over the face. The author gives details of the technique for the preparation of the radio-active ointment. He states that a "Cellophane" plaque, 5·0 by 2·5 centimetres, containing radon dissolved in petroleum jelly, 1·0 millicurie per cubic centimetre, will cause erythema of the

normal skin with depilation after forty-eight hours of exposure. By this preparation he has treated congenital nævi, *sycosis barbæ*, multiple warts and hypertrichosis. The author gives details of the protective measures which are necessary, and also a short account of the cases demonstrated by him at the meeting. In reply to one speaker he said that photographic records of the plaques showed that the suspension of radon was uniform.

UROLOGY.

Pyelitis, Ureteritis and Cystitis Cystica.

F. S. PATCH (*The New England Journal of Medicine*, June 15, 1939) discusses the ætiology of pyelitis, ureteritis and *cystitis cystica* and its relation to *cystitis glandularis*. Both are due to chronic irritation, either bacterial or mechanical. The symptoms are not characteristic, being those of the underlying disease; but the diagnosis of *cystitis cystica* is readily made with the cystoscope. Pyelitis and *ureteritis cystica* are more difficult to diagnose and a clinical diagnosis is reported in only ten cases. The typical feature in the urograms is the presence of vacuoles or filling defects in addition to obstructive features produced by the cysts. The first objective in treatment is the discovery and removal of the original cause. When this is possible the cystic condition usually undergoes spontaneous resolution. In the upper urinary tract, in the absence of any indication for open operation, such as calculus, the author recommends repeated ureteral dilatation followed by the instillation of a 1% or 2% solution of silver nitrate.

Diagnosis of Retroperitoneal Tumours.

IN an endeavour to facilitate the diagnosis of retroperitoneal tumours, H. M. Weyrauch, junior (*The Journal of Urology*, June, 1939), has studied renal torsion as demonstrated by retrograde pyelography. Renal torsion is an abnormal acquired rotation of the kidney on its vertical, horizontal or antero-posterior axis, either singly or in combination. Eleven patients with clinical tumour in the flank were studied. The factors influencing renal torsion are the length and the point of attachment of the vascular pedicle, limitation of mobility of the ureter in a cranial direction, the compact substance of the kidney and the unyielding nature of the renal fossa. Generally a mass impinging on the central area of the kidney is more likely to produce torsion in the vertical axis. Pressure at either pole will cause transverse torsion. Central displacement of the entire kidney or upper portion of the ureter is pathognomonic of retroperitoneal tumour. Localized distortion of the renal pelvis, other than a mild compression, is distinctive of an intrarenal mass. Enlargements of the liver and spleen may produce any type of renal torsion, together with a downward and medial displacement of the kidney.

Fatty Replacement following Renal Atrophy.

F. C. HAMM AND J. A. DE VEER (*The Journal of Urology*, June, 1939), contrary to the general opinion, believe that fatty replacement of the liver is a frequent accompaniment of lesions which lead to renal atrophy. It is pointed out that fatty replacement is not confined to the kidney, but is found in other organs undergoing degeneration. The most extensive examples are found only in obese patients. The process is one of hyperplasis of the adipose tissue normally present in the renal sinus. It is not the cause of atrophy, but is a secondary phenomenon, which of itself is of little significance. It is therefore suggested that any designations connoting a neoplastic, invasive or destructive process should be discarded; that the name should signify the secondary nature of the process, and that it should be used only to amplify the description of the pathological lesion to which it is secondary.

Urea-Splitting Organisms.

L. THOMPSON AND T. L. SCHULTE (*Proceedings of the Staff Meetings of the Mayo Clinic*, June 7, 1939) strongly recommend that a few drops of urine be added to a urea broth culture medium whenever urea-splitting organisms are suspected in infections of the urinary tract. This procedure is specially advised in four groups of conditions: (i) persistently alkaline urine, (ii) acute diffuse fulminating hæmorrhagic cystitis, (iii) incrustations, (iv) urinary calculi. In the case of urinary calculi formed of urates or oxalates in which the pH is found below 5·5, urea splitters are never found; when calculi formed of calcium and magnesium carbonate, phosphate or ammonium magnesium phosphate are associated with a pH of 7·5 or higher, urea-splitting bacteria are present in more than half the cases. Of 100 specimens incubated, twenty-four in urea broth yielded cultures of the following organisms: *Bacillus proteus*, 13; diphtheroids, 7; micrococci, 2; *Salmonella morgagni*, 2.

Physio-Pathology of Vesical Neck Obstruction.

W. E. LOWER (*Urologia*, December, 1938) discusses the results of experiments in rats designed to reveal the effect of sex hormones or gonadotrophic hormones on the size of the prostate gland, with the clinical object of decreasing bladder neck obstruction in human beings. A preliminary statement is based on experiments with parabiotic rats. It may be said that excess of gonadotrophic hormone can pass from a male or female castrated rat to a male or female parabiotic partner from which the hypophysis has been removed. The parabiotic male rat responds to this by marked testicular activity, which is made manifest superficially by increase in volume of the testicle and increase in vascularization of the scrotum. The response in a female partner is a continent exhibition of vaginal heat (œstrus). It was decided to use the parabiotic technique to study the capacity of synthetic crystalline sex hormones to inhibit such hypophyseal gonadotrophic activity. For this purpose varying doses of propionate of testosterone and of œstrin were injected daily, or on alternate days, into castrated parabiotic subjects. With injection of sufficient doses into parabiotic partners deprived of the hypophysis, distinct atrophic alterations could be observed, such as decrease in testicular size, retreat of the testes into the abdomen, pallor of the scrotum and diminution of its superficial area. In the female there was decrease in the secretion of vaginal smegma and a falling into characteristic apathy. This profound atrophy is characteristic of rats deprived of the hypophysis, which are not joined in parabiosis and not treated in any way. There is, therefore, no doubt that male and female sex hormones suppress the activity of gonadotrophic hormones. The retrogression of the volume of the prostate gland, the seminal vesicles, the scrotum and other secondary sexual organs is manifested as rapidly after hypophysectomy as after castration. This happens because the activity of the interstitial cells of the testis depends on the gonadotrophic hormone produced by the anterior lobe of the pituitary gland. The volume of the prostate is controlled by the activity of the interstitial cells of the testis, so that if the ultimate stimulatory activity of the hypophyseal gonadotrophic hormone can be inhibited by sex hormones, decrease in bladder neck obstruction can be expected by injections of such hormones, so far as such obstruction is due to prostatic hypertrophy.

Examination of Semen.

A COMPLETE and systematic method of examining the semen is given by O. J. POLLÁK AND C. A. JOËL (*The Journal of the American Medical Association*, July 29, 1939). It is claimed that by this method azoospermia (in which sperms are absent but cells of spermatogenesis are found) may be differentiated from aspermia in which neither sperms nor cells are present. Necrospermia and asthenospermia are recognized, and it is possible to establish the diagnosis in such conditions as localized degenerative-regenerative processes in the testicle; testicular atrophy and hypoplasia; abnormalities of the epididymis, especially after gonorrhœa, and derangements in the distal part of the seminal-urinary tract. Thus it is possible to form a reliable opinion about male fecundity.

Special Articles on Civilian War Casualties.

XII.

THORACIC INJURIES.[1]

A CONSIDERATION of thoracic injuries in war time necessitates a description of the injuries produced by penetrating foreign bodies, whether of a lodging or through-and-through character, or of a tangential nature. The treatment indicated for each type of injury must be detailed at two different periods: (i) at the time of injury, when the patient reaches the nearest aid post—that is, the type of treatment carried out at regimental aid posts in the Great War; (ii) later, at the casualty clearing station or nearest hospital adequately equipped to deal with such major surgical problems.

The treatment carried out at the aid post is simple, essential, and often life saving; that at the nearest hospital is exacting and needs expert help from anæsthetists, radiographers, resuscitation teams and a nursing staff accustomed to handling serious surgical cases.

It is well recognized that casualties of this type travel badly, both before and after operation; they are distressed and short of breath. Physical rest is essential; the problem in transportation, then, is to move the patient to the nearest hospital as quickly as possible, for it is only there that he can be adequately treated, and also to combat shock, dyspnœa and loss of body temperature. After the wound has been treated according to accepted principles at the aid post, any interference with the wound for any reason other than the control of hæmorrhage during transportation to the casualty clearing hospital is useless and meddlesome.

Types of Thoracic Injuries.

The types of thoracic injuries may be classified as follows: (1) through-and-through wounds, uncommon in modern warfare in comparison with the experience in the South African War, where bullet wounds were the rule and not the exception; (ii) small penetrating and lodging foreign bodies (fragments of shell, bomb *et cetera*); (iii) large penetrating and lodging foreign bodies; (iv) sucking wounds—that is, open pneumothorax; (v) tangential wounds of the thoracic cage, with extensive injury to ribs and muscles and underlying structures; (vi) complicated injuries, such as penetration of the diaphragm, with injury to one or more of the abdominal viscera.

In the South African War patients with thoracic injuries which were not rapidly fatal from vascular or pulmonary complications developed a hæmothorax, and treatment was largely that of a fluid or clotted hæmothorax. In the Great War the majority of those patients who did not rapidly die had ragged wounds, often with lodging metal and other septic foreign substances such as clothing, and often with an open pneumothorax. Those patients who survived the severity of the initial injury and vascular complications still had to combat shock, possibly the consequences of an open pneumothorax and sepsis, and it was from the latter that many died.

How are these casualties to be treated, at the first aid post or at the place of injury? (i) They must have rest. The respiratory mechanism is embarrassed and pain increases the dyspnœa. (ii) They must be given morphine to relieve pain, lessen the dyspnœa and permit of transportation. (iii) Any sucking wound—that is, any open pneumothorax—must be closed.

Bullet wounds seldom, if ever, damage the thoracic cage sufficiently to be a cause of open pneumothorax. Small fragments of shell inflict a lacerated wound which tends to become wider and more extensive the further the wound is followed through the thoracic wall. If these wounds are closed and not sucking when seen at the first aid post, interference is meddlesome. If the skin wound is enlarged and clot and bruised tissue are displaced, what was a closed penetrating wound with a lodging foreign body may easily become transformed into an open sucking pneumothorax. Larger pieces of shell, if they do not cause rapidly fatal injuries, produce either injuries to the thoracic cage or penetrating wounds with an open pneumothorax, with or without complications. The treatment of these wounds must be immediate closure by the following means: (i) suture of a dressing of many layers of gauze over the wound by means of sutures passed through the edges of the wound—no other method will keep the dressing in place for stretcher transport; (ii) continuous suture of the skin. Either method can be readily carried out at once, as the traumatized tissue permits of this being done without pain and relief is immediate. A silkworm gut suture and a large cutting-edge needle are all that is needed.

The recumbent position, morphine, warmth, adequate control of the thoracic wound as regard hæmorrhage *et cetera*, with similar treatment of any other wound, is all the treatment that can be instituted before the casualty reaches hospital.

Of the two methods of closing an open pneumothorax I preferred the first to simple suture of the skin, because while closing the pneumothorax it still permits of some drainage of the wound. It is true that gas gangrene of the thoracic wall is rare and is usually of the localized type, because the main blood supply to the part cannot be interfered with as is the case with wounds of the extremities. Furthermore, these wounds will all be excised, it is hoped, within the recognized safe period; this should eliminate such infection, so that it is probably immaterial which method is used.

Treatment at the Casualty Clearing Station.

The first treatment at the casualty clearing station is resuscitation; often all known methods will fail to combat shock. It may be six to eight hours in some cases before the patient will be fit for operation. In the second place the extent of the injuries should be correctly evaluated. It may be necessary to amputate an extremity first.

In some cases of low thoracic injuries the signs are such that the abdominal injuries must take precedence, and laparotomy, and not thoracotomy, will be the first procedure. In these cases the presence of the foreign body in the thorax or abdomen as revealed by radiography, if this is available, may help in the decision. An X ray examination should then be carried out if possible.

Operative treatment must always envisage the following: (*a*) excision of the wound together with four inches of rib; (*b*) probably an open thoracotomy; (*c*) evacuation from the pleural cavity of blood, clothing and foreign bodies; (*d*) removal of foreign bodies from the lung, with excision of the edges of the wound in the lung and suture of the lung (the foreign body will usually be located by palpation); (*e*) suture of perforations in the diaphragm; (*f*) closure of the thoracic wall; (*g*) the possible necessity of a laparotomy in some cases.

Anæsthesia.

With regard to anæsthesia, opinions will differ. Those British surgeons with whom I was fortunate enough to work for a limited period in 1918, after extensive experience were using chloroform and oxygen in these cases in preference to nitrous oxide and oxygen, because one lessened while the other increased the depth of the respiratory excursion.

It must be remembered that a casualty clearing hospital has not all the equipment of a base hospital, or anything approaching a similar resident or nursing personnel. This might prevent the use of basal narcotics, and the choice might again lie between chloroform and oxygen, nitrous oxide and oxygen, and possibly high light spinal anæsthesia, if the general condition as indicated by British Pharmacopœia readings *et cetera* permits, which is unlikely.

Contraindications to Operation.

The following are contraindications to operative interference: (i) shock, (ii) small wounds with no evidence of major injury, (iii) massive collapse of the lung, especially contralateral basal collapse.

[1] A lecture delivered under the auspices of the Melbourne Permanent Post-Graduate Committee on August 9, 1939.

Massive collapse of the lung was present in about 10% of Gask's cases, but in only about 2% was it contralateral. In these it was probably caused by blockage of a bronchus from inspired blood clot or mucus. The indications will be: restricted movement on the side of the collapse, cyanosis and dyspnœa, dulness to percussion, diminished voice sounds and fremitus over the base of the involved lung.

Hæmothorax from a through-and-through bullet wound or from a small lodging foreign body is not an indication for thoracotomy, but for conservative treatment by the following means: (i) Aspiration may be carried out, and may be repeated as often as clinical signs indicate that it is necessary. (ii) If the pleura contains clot and becomes infected it must be treated in a similar way to an empyema—that is, bacteriological proof of infection must be sought, and then a rib resection must be performed (one inch will suffice), the clot must be evacuated and drainage must be instituted.

A decision must in all cases be made as to whether thoracotomy should be performed through the wound or through a fresh incision. In some cases, possibly because of details obtained by X ray investigation which indicate the site of the lodging foreign body, the wound of entry may be closed and the thorax opened through an incision which gives better access to the foreign body. This incision will probably be somewhere about the fifth or sixth interspace in the axilla.

Surgical Emphysema and Interstitial Emphysema.

Neither surgical emphysema nor interstitial emphysema causes serious difficulties at aid posts or casualty clearing stations.

Valvular Pneumothorax.

Valvular pneumothorax from a sucking parietal wound was said to cause serious embarrassment at aid posts. I closed all sucking wounds and did not notice which were valvular and which were not. The treatment when the lesion is recognized must be, first, to stop the sucking, and second, to relieve the air tension with a large needle or by aspiration.

Penetrating Wounds of the Chest.

For two years—that is, till 1916—little was done for patients with penetrating wounds of the chest except the institution of rest and the administration of morphine, and the drainage of the empyema that so often resulted if the patient survived. This was due to the experience during the Boer War, which was (i) that patients with hæmothorax treated by aspiration had the highest percentage of recovery, (ii) that open thoractomy was assumed to be dangerous, (iii) that lacerated lung tissue was assumed to bleed, when it does not; collapse seems to limit hæmorrhage.

In 1917 and 1918 not only were open thoracotomies everyday procedures, but casualty clearing stations had long series of successful cases in which not only was thoracotomy performed, but laparotomy also. The various procedures carried out for the treatment of a damaged liver, spleen or kidney, or the repair of a colon or stomach, associated with a wound of the diaphragm and a penetrating thoracic wound, are beyond the scope of this lecture. Radiography may not be available, and the condition of the patient may limit investigation; but if practicable, radiographic examination does confirm the clinical survey of the patient as regards the following points: (i) the position of the foreign body and extent of damage to ribs *et cetera*; (ii) the extent of the hæmothorax or hæmopneumothorax; (iii) the extent of the pulmonary collapse.

In the latter half of 1918, when I was engaged in casualty clearing team work, I operated on all my patients without the advantage of a preliminary radiographic examination.

After-Treatment.

With regard to after-treatment, the following measures are important. The patient should be kept at rest in the sitting position. Oxygen should be given, and morphine should be exhibited. Frequently repeated aspiration should be carried out, the first within twenty-four to thirty-six hours. Whether negative pressure drainage will in the future be possible, with the staff that will be available, remains to be determined. The empyema cavity, if it occurs, should be drained.

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British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on July 20, 1939, at the Women's Hospital, Crown Street, Sydney.

Cæsarean Section.

DR. A. J. GIBSON read a paper entitled "The Place of Cæsarean Section in the Treatment of Placenta Prævia" (see page 934).

DR. T. DIXON HUGHES said that he intended to place before those present some hard facts, which, although they might not be pleasant, would at least be provocative of thought. All advances in medicine had been fraught with danger; but they gradually became controlled and took their appointed place in the general scheme of advancement. It was necessary, therefore, that Cæsarean section should be controlled; it was a life-saving measure that was gradually changing through its rapid growth to a malignant influence on the lives of mothers. Dr. Dixon Hughes had not reached those years of senescence that believed only in the good old days; nor had he any desire to see children hauled into the world as of yore *vi et armis* rather than *arte obstetrica*. The facts had to be faced, however; Cæsarean section was on the increase. Other countries had the same problem. De Lee had stated that there could be little doubt that the frequency of Cæsarean section was one of the causes of the high maternal mortality rate. Dr. Dixon Hughes thought that this high incidence was well illustrated by the figures in the report on Cæsarean section of the State of Massachusetts. The first Cæsarean section had been performed in 1894 and the hundredth was not reached until 1907; but thirty years later 2,082 Cæsarean sections had been performed in one year (1937); this meant that Cæsarean section was performed once in every thirty births. Of the mothers, 66 had lost their lives. Dr. Dixon Hughes wondered whether obstetricians in New South Wales were satisfied that they were not drifting in the same direction. At a large private hospital having a maternity block 7,320 confinements had taken place; one in every 50 of these patients had been subjected to Cæsarean section, the death rate being 5·37%. At another hospital, which had had a total of 109 confinements, one in every 16 patients had had a Cæsarean section. Dr. Dixon Hughes thought that, even if allowance was made for possible "loading" of the figures he had quoted, investigation of the figures for the State would reveal a steady increase in both the number of Cæsarean sections and the death rate. The more popular a surgical operation became, the more practitioners would attempt it; and whilst Cæsarean section performed by specialists carried a mortality rate of between 2% and 3%, the rate rose in inverse ratio to the surgeon's or obstetrician's experience. This fact was borne out by world statistics.

Dr. Dixon Hughes went on to say that although he had performed his fair share of Cæsarean sections, he approached them with respect and with full realization of

the 2% mortality risk. It was this risk of death to the mother that he wished to bring before the notice of those present. It was only the observation of what happened to somebody else's patients that made one realize what might happen to one's own. When Dr. E. S. Morris and Dr. Sandford Morgan had carried out their investigations of deaths following childbirth in New South Wales, they had found that every sixteenth death followed Cæsarean section. No matter where figures were sought, and no matter what type of operation was used, the death rate associated with Cæsarean section was at least ten times greater than that associated with delivery *per vaginam*. Dr. Morris and Dr. Morgan, after having investigated all deaths following childbirth, came to ten conclusions; one was that the operation of Cæsarean section appeared to be employed with increasing frequency, but with doubtful efficacy or justification, in obstetric complications.

Dr. Dixon Hughes went on to quote Munro Kerr, who had stated that it would be a sorry day for obstetrics and for the community if Cæsarean section was freely and light-heartedly employed in complications which could be successfully overcome by manipulation and devices long associated with the art of obstetrics. Dr. Dixon Hughes then referred to the question of the justification of Cæsarean section. He said that he was sure that radiographers would agree with him when he said that an X ray report of disproportion was not an indication for Cæsarean section, but a warning of the possible necessity. Perhaps the risks might be better appreciated if they were stated in terms of other surgical procedures. F. C. Irving had stated that Cæsarean section was one and a half times as dangerous as operations on the gall-bladder, twice as dangerous as surgical intervention in acute appendicitis, and three and a half times as dangerous as supravaginal hysterectomy for fibroid growths.

Dr. Dixon Hughes then said that in 16,779 booked confinements at the Women's Hospital during the last seven years the death rate was 2·26 per thousand. He proceeded to compare the risk of Cæsarean section with the risk of normal delivery by means of two flasks, each containing 1,000 cubic centimetres. From the first he took 2·5 cubic centimetres; this represented the number of deaths following vaginal delivery. From the second he took 40 cubic centimetres; this represented the number of deaths following Cæsarean section. Dr. Dixon Hughes called attention to the obviously great difference in volume between 2·5 cubic centimetres and 40 cubic centimetres. He said that he hoped he had brought home to those present two facts: (i) that Cæsarean section carried a definite risk to the mother, and even an appreciable risk to the child; (ii) that Cæsarean section was being increasingly used in Australia, as in other countries, and constituted a new obstetrical problem. He urged those present to help to solve the problem by refraining from performing Cæsarean section unless they had a definite justification; if that was present, their conscience would be clear and they could proceed without fear of criticism as to the validity of their actions.

DR. R. MCD. BOWMAN said that the increasing use of Cæsarean section made one wonder whether disproportion received full and proper consideration, particularly with regard to the possibilities of properly supervised trial labour. In the presence of disproportion three methods of treatment were at the disposal of the obstetrician: (i) Cæsarean section at term, (ii) premature induction of labour, (iii) trial labour, followed by Cæsarean section or instrumental delivery if necessary.

Dr. Bowman said that Cæsarean section was the only method if the disproportion was too great or if the patient was an elderly *primipara* or an elderly *multipara* without living children. With regard to the borderline group, however, the decision was not so simple. One method that could be considered was induction of labour. To give the fœtus any chance of surviving, the induction could not be carried out before the thirty-sixth week, and that period could not always be determined with certainty. Induction of labour by means of drugs (and the drug should not contain pituitary extract) was by no means sure. Instrumental induction was not an absolutely safe procedure, and death might follow directly or indirectly from such causes as sepsis, hæmorrhage *et cetera*. A still greater objection was that should the case have been misjudged and the instrumental induction attempted in the presence of insuperable disproportion, then the Cæsarean section sometimes carried out became the most dangerous procedure in obstetric surgery. In addition to these facts, the fœtal mortality rate, according to recognized authorities, was from 10% to 15%. Dr. Bowman went on to say that in borderline cases it was difficult or even impossible to assess accurately the degree of disproportion, or indeed to determine whether it was present or not. Even if it were possible to estimate the disproportion accurately, there would still remain two almost unknown factors which had a great influence on the course of the labour; these were the plasticity of the fœtal head (the extent to which it could be moulded) and the strength of the expulsive forces. These could be tested only by a trial of labour, and a decision could be reached only after labour had been in progress for some time, the head had assumed a definite position and the soft parts were relaxed and thinned out. Dr. Bowman said that it was obvious that many inductions of premature labour, with their attendant risks, were needlessly carried out.

Referring to trial labour, Dr. Bowman said that it was certainly contraindicated in such cases as those in which great disproportion was obvious, or in cases associated with a history of previous unsuccessful trial labour. It had many disadvantages; for example: (i) the anxious supervision and large amount of time demanded of the obstetrician; (ii) the necessity for it to be carried out in an institution where Cæsarean section could be performed if necessary; (iii) the considerable risks to the child, such as prolapse of the cord, intracranial injuries or asphyxia, and the probability that the damage would be increased if forceps extraction became necessary; moreover, an exhausted mother was predisposed to sepsis and *post partum* hæmorrhage. If the trial labour was restricted to a fair test, however, most of these risks were eliminated.

Dr. Bowman further said that if trial labour was decided upon, postmaturity ought to be avoided if possible. Drug induction could be tried, without the use of pituitary extract. The progress of the trial was watched, with special attention to several factors. The fœtal heart sounds should be counted at intervals, and it should be borne in mind that the danger to the fœtus varied with the length of time the membranes had been ruptured and with the strength and frequency of the uterine contractions. There was no danger to the fœtus so long as the membranes were intact. The behaviour of the fœtal head should be followed entirely by palpation; the points to note were whether the head engaged and how far it descended into the pelvis. Vaginal examinations should be reduced as far as possible; two at the most should be made, and nitrous oxide and oxygen anæsthesia should be used, because the obstetrician's aseptic precautions could be more thorough. The first examination should be made immediately after rupture of the membranes if the head was not engaging the brim, to determine whether the cord had prolapsed. The second examination should be made two hours after rupture of the membranes if in the meantime good contractions had occurred every five to seven minutes. The condition of the cervix was then noted. If it was dilated and closely applied to the head, progress was favourable; but if it hung long and loose, with possibly an œdematous anterior lip, vaginal delivery was unlikely and Cæsarean section was indicated. Dr. Bowman stressed the importance of remembering that the ischial spines indicated the level of the pelvic floor, and of observing the descent of the head in relation to the spines. If the descent was unsatisfactory it should be noted whether there was a parietal presentation, and, if so, of what variety. If it was found that the sagittal suture approached the symphysis—in other words, that the fœtus was presenting in the posterior parietal position—the outlook for delivery was less favourable than it would be in an anterior parietal presentation. This occurred only in cases of disproportion due to pelvic flatness.

Dr. Bowman then spoke of premature rupture of the membranes as a special risk in trial labour. He said that the earlier the membranes ruptured, the greater the danger to the fœtus and to the mother if Cæsarean section had ultimately to be performed. It was a great advantage to keep the patient's bowels acting freely a few days before the trial was due; the customary enema should not be given after labour began. Moreover, the patient should be kept in bed during the first stage. As primary inertia was apt to be present, because the high head was unable to exert pressure on the cervix and thus set up strong contractions, the value of sleep and nourishment in the avoidance of maternal exhaustion should be remembered. Provided the membranes were intact, a long first stage need occasion no anxiety.

Dr. Bowman went on to say that if after a fair trial the head failed to enter the pelvic cavity, Cæsarean section was necessary; he proceeded to define a fair trial. F. J. Browne, of London, had stated that a fair trial of labour could be said to have been made only when strong contractions had been recurring every four or five minutes for at least two hours, during which period the cervix had been fully dilated and the membranes had ruptured. Dr. Bowman remarked that it was not always desirable to wait so long; for example, in the presence of a rigid cervix, slow in dilating, and maternal distress. In primary inertia and early rupture of the membranes fœtal distress might occur. When the head had descended into the pelvic cavity, and provided that the cervix was fully dilated, forceps might be used, if necessary, to terminate the trial labour. Dr. Bowman said that "if necessary" meant if maternal or fœtal distress, or both, were becoming evident. To determine whether the cervix was fully dilated it was best to make an examination under anæsthesia, because when the contractions ceased and the head receded, a lesser degree of dilatation was found to exist than might be apparent during a contraction. This was a possible explanation of some of the many premature applications of forceps. Dr. Bowman said that in a contracted pelvis delivery was possible only when considerable head moulding compensated for the pelvic contraction. This necessitated a prolongation of the second state of labour. Forceps were not called for because of disproportion, but because of maternal or fœtal distress. It was rarely advisable to apply forceps unless the lowest point of the head had reached at least the level of the ischial spines. In conclusion, Dr. Bowman again stressed the impossibility of accurately assessing disproportion and of estimating the plasticity of the fœtal head and its capability of being moulded. If an over-assessment was made the mother was exposed to greater risk, not only in that pregnancy, but in future pregnancies. He pleaded for a test of labour in borderline cases, and urged that Cæsarean section be performed as soon as there was a proved pathological condition to justify it.

Prematurity.

DR. SELWYN HARRISON showed four infants who had been premature and of low birth weight. The first was a female, who had been born on February 24, 1938. At birth her weight was two pounds ten ounces and her length fifteen and a half inches. Her estimated maturity was thirty weeks. At the time of her discharge from hospital at the age of three and a half months her weight was five pounds four ounces. The mother was aged forty-six years at the time of the child's birth; it was her third pregnancy, and both her other confinements had been normal.

After the child's birth satisfactory colour and condition had been maintained for one month; then anæmia of prematurity developed. The child was very pale. A blood count revealed 1,890,000 erythrocytes per cubic millimetre, a hæmoglobin value of 45% and a colour index of 1·2. "Colliron" and halibut liver oil had been given from the child's third week, and their administration was continued for months. After the blood count a transfusion of thirty cubic centimetres of blood (10 cubic centimetres per pound of body weight) was given. Another transfusion of 40 cubic centimetres was given a fortnight later. The intramuscular injection of doses of one cubic centimetre of "Campolon" was begun at the same time; five injections were given in two weeks. The response to antianæmic therapy was, as usual, slow.

The baby was tube fed with expressed breast milk for seven weeks, then fed from tube and bottle, then from a bottle only, and finally fully breast fed. When she was discharged from hospital on June 4, 1938, her condition and colour were good, and a blood count revealed that the erythrocytes numbered 3,480,000 per cubic millimetre, the hæmoglobin value was 62% and the colour index 0·91.

Discussing after-care, Dr. Harrison said that breast feeding had been complemented when the child was four months old. When she was aged seven months her food consisted of "Lactogen" in the proportion of one part in eight (which was equal to undiluted cow's milk), cod liver oil and malt extract (Kepler), and vegetable soup with raw egg yolk (to ensure ample protein for rapid body growth). At that time her weight was twelve and a half pounds, or nearly five times her birth weight. At the age of twelve months she weighed seventeen pounds, or six and a half times her birth weight. At the time of the meeting she was seventeen months old and weighed twenty-three pounds, or about nine times her birth weight. She walked and talked well, was very active and had eight teeth.

Dr. Harrison then showed another female infant, who, when born on September 8, 1938, had weighed two pounds nine ounces. Her estimated maturity was thirty-eight weeks. She was one of twins, the other having died three days after birth. The child was discharged from hospital in a little over two months, weighing five pounds.

The mother was a *primipara*, aged twenty-nine years, who suffered from albuminuria. The child's colour and condition were maintained satisfactorily for one month; then anæmia of prematurity developed and she became very pale. A blood count revealed 1,840,000 erythrocytes per cubic millimetre and a hæmoglobin value of 65%. The administration of "Colliron" and halibut liver oil three times a day was begun when the child was nineteen days old, and was continued for months. A transfusion of 50 cubic centimetres of blood was given directly after the blood count. Five days later another blood count revealed 3,030,000 erythrocytes per cubic millimetre, a hæmoglobin value of 60% and a colour index of 1·0. No other antianæmic treatment was given. The baby was tube fed for about one month, tube and bottle fed for one week, bottle and breast fed for three weeks, and was discharged from hospital, fully breast fed, on November 13, 1938. She was then in good physical condition.

Dr. Harrison then spoke of the after-care. He said that when the baby was three months old breast feeding was complemented with milk and water in the proportion of two parts to one. Her weight was then seven pounds six ounces. When she was nine months old her weight was fourteen pounds. She was given undiluted cow's milk, vegetable soup and egg yolk. Her birth weight had then been multiplied five and a half times, and a diet rich in protein was needed. At the time of the meeting the baby weighed fifteen and a half pounds, and was ten months old. She crawled, was very intelligent and energetic, and had four teeth.

The third baby shown by Dr. Harrison was a girl, who, when born on September 29, 1938, weighed two pounds eight and a half ounces. The estimated maturity was twenty-eight weeks, and the child's length at birth was fourteen and a half inches. When discharged from hospital after about three months she weighed six pounds three ounces. The mother was aged thirty-three years and had had two previous confinements. Surgical induction of labour was necessary, as she suffered from eclampsia; she had three convulsive seizures at home and two in the ambulance. The total number of convulsive seizures was twelve.

Although the baby showed good sucking power from birth, tube feeding with pooled expressed breast milk was introduced, so that an adequate caloric intake would be maintained and energy conserved. Nine weeks after the baby's birth the number of erythrocytes fell to 2,340,000 per cubic millimetre, and the hæmoglobin value fell to 47%. Four days after an intramuscular injection of

twenty cubic centimetres of blood the number of erythrocytes rose to 3,140,000 and the hæmoglobin value to 50%. The administration of "Colliron" and halibut liver oil was begun when the child was three weeks old, and was continued for months. Treatment with one-twentieth of a grain of thyreoid extract per pound of body weight was begun on the eleventh day after the baby's birth, and was continued throughout the hospital period. Tube feeding was continued for two months and the child was breast fed at two and a half months. She was discharged from hospital in good physical condition, fully breast fed, on December 18, 1938.

Referring to after-care, Dr. Harrison said that when the child was four months old she suffered from pertussis. At that time her weight was nine pounds, three and a half times her birth weight. At the age of eight months she weighed thirteen and a half pounds, or roughly five times her birth weight. Her diet then consisted of porridge, vegetable soup with egg and "Marmite", custards and undiluted milk. At the time of the meeting she was ten months old, was able to sit up by herself, and was mentally very bright. She had two teeth.

Dr. Harrison then showed another female infant who had been born on January 19, 1939. Her birth weight was two pounds twelve ounces and the estimated maturity was twenty-eight weeks. She had been discharged from hospital after eleven weeks, weighing five pounds and half an ounce. The mother was aged twenty-nine years; it was her second pregnancy, and the previous confinement had been normal.

The baby had been cyanosed at birth, so oxygen was administered by means of a tent for one week, and after that the child was given carbon dioxide and oxygen by nasal catheter for occasional cyanotic spells.

Anæmia of prematurity manifested itself when the baby was about one month old. A blood count at that time revealed that the erythrocytes numbered 1,300,000 per cubic millimetre and the hæmoglobin value was 45%. Thyreoid extract had been given from the child's fourth day. "Colliron" and halibut liver oil were given when she was three weeks old. Blood transfusion was difficult, so 20 cubic centimetres of blood were given intramuscularly. Doses of one cubic centimetre of "Campolon" were given twice a week until five had been given. After five more weeks the erythrocytes numbered 3,600,000 per cubic millimetre, the hæmoglobin value was 58% and the colour index was 0·8. The baby was tube fed with peptonized expressed breast milk for the first five weeks; then she was given ordinary expressed breast milk by bottle, and she was fully breast fed at the age of ten weeks. She was a very vigorous sucker. The child was discharged from hospital on April 8, 1939, in good physical condition, except for blindness due to bilateral pseudoglioma.

With regard to after-care, Dr. Harrison said that at the age of four months the baby weighed nine and a quarter pounds, or three and a half times her birth weight. At the time of the meeting she weighed twelve and a half pounds, or four and a half times her birth weight.

Discussing maturity, Dr. Harrison said that at the Women's Hospital the definition established by the Royal College of Obstetricians and Gynæcologists was adopted. According to this definition, if a child born at term weighed five and a half pounds or less, it was considered to be immature; if the child was born before term and weighed five and a half pounds or less it was considered premature; if it was born at less than twenty-eight weeks' gestation it was officially considered non-viable. During the twelve months from July, 1938, to June, 1939, 140 premature and 38 immature babies had been born; 136, or 76·4%, had lived and 42, or 23·6%, had died. As Pierre Budin had taught forty-five years earlier, the essentials of successful care of premature infants were three: (i) adequate warmth, (ii) correct feeding with breast milk, (iii) prevention of infection. At the Women's Hospital the air-conditioned "premature unit" had been in operation for twenty months. The temperature was maintained at 75° to 80° F. and the relative humidity at 65%. Dr. Harrison remarked that a high humidity was important. Frequent changes of fresh filtered air were provided. With regard to feeding, the amount given at the beginning was half a fluid ounce of expressed breast milk per pound of body weight per day; this amount was increased each day by a quarter of a fluid ounce per pound of body weight per day, if the child was able to tolerate it. The amount was cautiously increased to three fluid ounces per pound of body weight per day. Infection was prevented by the observance of operating theatre technique; masks and gowns were worn.

Icterus Gravis Neonatorum.

Dr. Harrison then showed a male baby who had been born on October 12, 1938. At birth the child weighed eight pounds eight ounces, and the estimated maturity was forty weeks. When the child was discharged from hospital, in approximately two months, he weighed nine pounds thirteen and a half ounces. The mother had had one previous confinement, which had been normal; she was aged twenty-nine years. An instrumental delivery had been necessary in the case of the baby under discussion. He appeared normal at birth; but six hours later jaundice had appeared and had become rapidly intensified. When he was twelve hours old he was given a transfusion of 100 cubic centimetres of non-maternal typed blood. The next day he was profoundly jaundiced and ill; he was given a transfusion of 50 cubic centimetres, and on the next day he received a further 50 cubic centimetres. A blood count made on the first day revealed that the erythrocytes numbered 2,800,000 per cubic millimetre and the hæmoglobin value was 80%. The leucocytes numbered 60,000 per cubic millimetre. Nucleated erythrocytes were extremely numerous; there were three megaloblasts, 13 erythroblasts and 48 normoblasts for every hundred leucocytes. Pronounced anisocytosis and diffuse polychromasia were present. At the end of a week no nucleated red cells were seen. On the third day œdema of the eyelids, scrotum and hands appeared. There was no obvious enlargement of the liver or spleen and the child's sucking power was fair. On the fifth day he was given another transfusion of 60 cubic centimetres of blood. Two other blood transfusions were given later, one of 100 and the other of 60 cubic centimetres; the child received in all 420 cubic centimetres of non-maternal typed blood. He was discharged from hospital on December 8, 1938, in good physical condition. The erythrocytes then numbered 3,300,000 per cubic millimetre and the hæmoglobin value was 71%.

Speaking of the after-care, Dr. Harrison said that the child had continued to receive "Colliron" and halibut liver oil. At the time of the meeting he was aged nine months and weighed nineteen pounds. He had eight teeth and was thoroughly fit and mentally bright.

Dr. Harrison remarked that the baby was a good illustration of *erythroblastosis neonatorum*, which included in descending order of gravity *hydrops fœtalis*, *icterus gravis* and hæmolytic anæmia of the new-born. The outstanding features were early pronounced jaundice, the obviously serious condition of the infant and the hæmolysis. The hæmatopoietic tissues were intensely stimulated; extramedullary remnants in the liver, spleen and kidneys were recalled to activity, with an outpouring of nucleated red cells and an embryonic blood picture. Immediate and repeated transfusions of non-maternal typed blood were essential.

(To be continued.)

Obituary.

STEWART WILLIAM FERGUSON.

WE are indebted to Dr. H. Boyd Graham for the following account of the career of the late Stewart William Ferguson.

The name of Stewart William Ferguson will long be remembered with respect by many generations of medical

students, who are now scattered throughout Australia, because of his distinctive position as a teacher at the Children's Hospital, Melbourne. Thousands of men in practice today are applying the knowledge based on what they learned from him about the feeding and management of infants and young children in health and in sickness.

Stewart William Ferguson was born at Wodonga on November 14, 1881, the son of Daniel Ferguson, barrister and civil servant. As announced recently in these columns, he died on October 8, 1939. He received his early education at South Melbourne College and completed the medical course at the University of Melbourne at the early age of twenty-one years and obtained the degree of Doctor of Medicine in 1905. In 1904 he entered upon his life work by becoming an assistant resident medical officer to out-patients at the Children's Hospital. In the following year he was appointed resident medical officer to in-patients, and from 1907 to 1912 was a clinical assistant to the honorary out-patients staff. From 1912 to 1914 he was an honorary attending medical officer to both out-patients and in-patients, and in 1914 was appointed an honorary attending physician to in-patients, a position which he occupied with distinction till his death. He was very well known as a consultant in diseases of children, and many of his patients have grown up to love Fergie as a family intimate and trusted friend. No review of his professional career would be complete without reference to his administration of anæsthetics; it can justly be claimed for him that he was a pioneer in the use of intratracheal methods and anæsthetic machines in Melbourne. His services in this important department of medicine and surgery were greatly appreciated by the surgeons and the patients.

Ferguson was elected a member of the British Medical Association, Victorian Branch, in 1904. He was Honorary Assistant Secretary from December, 1910, to December, 1913, when he became Honorary Secretary for one year, the year of the outbreak of the Great War. He resigned the secretaryship to Dr. Fay Maclure, who occupied the post for a brief time before he went on active service. For one more year Ferguson remained on the council, but his increasing responsibilities at the Children's Hospital and in private practice led to his retirement.

Dr. Reginald Webster states that Ferguson had a keen appreciation of the literary and histrionic art and followed the stage very closely. He enjoyed nothing more than an exchange of reminiscences regarding plays and their interpreters—the notable actors and actresses of the past. He was a strong supporter of the repertory movement.

Ferguson was a very good *raconteur*, being possessed of a large fund of anecdotes and amusing stories. One could always be sure that a story that he considered worth repeating was an excellent example of wit and subtlety.

He had the faculty for making friends outside the ranks of the profession, and he will be sadly missed by a large circle of professional and business people who are well-known identities of the city of Melbourne. Until failing health prevented it he was frequently to be found on the golf links when he could steal the time to get there. His family life was a happy one, marred by the distressing illness and loss of his first wife, many years ago. The sympathy of the profession will be extended to his widow, his son and his daughter, who may be assured that the outstanding merit of his professional career and human qualities will be so appreciated that his memory will survive at least until this generation passes away.

Dr. Hume Turnbull writes:

By the death of Stewart Ferguson Melbourne has lost a great children's doctor. He was appointed to the honorary staff of the Children's Hospital soon after his long term as resident medical officer was ended, and he was the senior physician at the time of his death.

His particular interest was infant feeding, in which he was most successful, and his clinical demonstrations in this subject were keenly appreciated by students and post-graduates alike. He spoke little in public and wrote less, but his influence on infant welfare in the State was great, and his students carried his teachings far and wide. Ferguson was a tireless worker, who made a fetish of punctuality and prided himself on never being late for an appointment, and nothing which could add to the comfort or peace of mind of a patient was a trouble to him. He liked to answer every call at once, at whatever inconvenience to himself, and conducted, with great success, a large practice scattered over the greater part of Melbourne, as well as a busy consulting practice in his rooms. Beyond all this, he was fond of society and the arts, and his capacity for carrying on both sides of life was a constant marvel to his friends.

He was one of the kindest of men, and his high reputation amongst his professional colleagues brought a heavy additional load, as a large part of his time was always taken up with the care of the families of his medical brethren, a duty which he treated as a trifle of no account, so that few beyond his own family realized the strain it entailed.

His courage and patience in the many trials of life were wonderful, and we have lost a fine man, who was an ornament to his profession, an inspiration to his juniors, and a very true friend to those whom he honoured with his friendship.

Correspondence.

THE BATTLE OF MEGIDDO.

SIR: May I briefly correct some figures attributed to me relating to the battle of Megiddo? When the battle of Megiddo began General Sir Harry Chauval had approximately 22,000 men in his command. When, nine weeks later, he reached Aleppo, there were 10,000 effectives.

In the Jordan Valley General Chaytor had 13,000 men and at the end of the nine weeks there were 4,000 left. But adding both together there were less than 1,000 gunshot wounds. Malaria chiefly, but also dysentery, accounted for the remainder of the disabled.

Once the army was moving the risk of infection was very great, and in fact almost unavoidable. Whilst it was static these diseases were fairly well controlled.

Field Marshal Lord Allenby was the first great commander who realized the risk and acted accordingly, which really meant finishing the main battle during the interval between inoculation and the outbreak of the disease, that is, utilizing the incubation period for the most active fighting. It seems that the failure of the Romans with regard to Persia was almost certainly due to malaria. Cleopatra warned Antony of the danger, but did not, of course, know the reason. Antony would not heed her and lost his army.

It is estimated by competent authorities that there are 650,000,000 persons infected with malaria on the globe, and of these, 4,000,000 die annually. If it ever gets into Australia on a large scale, which I think unlikely, people will be sorry for themselves.

Yours, etc.,

JAMES W. BARRETT.

103-105, Collins Street,
Melbourne,
November 27, 1939.

The Royal Australasian College of Physicians.

EXAMINATION FOR MEMBERSHIP.

THE next examination for membership of the Royal Australasian College of Physicians will be held in Melbourne in March and April, 1940. The written paper will be taken in capital cities where candidates are offering on Saturday, March 16, and the clinical examination will be conducted in Melbourne on Wednesday and Thursday, April 3 and 4, 1940. Application forms may be obtained from the office of the college, 145, Macquarie Street, Sydney, and should be in the hands of the honorary secretary at this address not later than February 17.

Books Received.

OTOSCLEROSIS, by L. K. Guggenheim, M.D., F.A.C.S.; 1939. St. Louis: Published by the author. Imperial 8vo, pp. 222, with illustrations.

SURGICAL DIAGNOSIS, by S. Power, M.S., F.R.C.S.; 1939. Bristol: John Wright and Sons Limited. Demy 8vo, pp. 225, with 51 illustrations and 15 plates.

A TOPOGRAPHIC ATLAS FOR X-RAY THERAPY, by I. I. Kaplan, B.S., M.D., and S. Rubenfeld, B.S., M.D.; 1939. Chicago: The Year Book Publishers Incorporated; Melbourne: W. Ramsay Proprietary Limited. Demy 4to, with 55 plates. Price: $4.00 net.

AN INTRODUCTION TO MEDICAL MYCOLOGY, by G. M. Lewis, M.D., and M. E. Hopper, M.S.; 1939. Chicago: The Year Book Publishers Incorporated; Melbourne: W. Ramsay Proprietary Limited. Crown 4to, pp. 323, with illustrations. Price: $5.50 net.

THE ABDOMINAL INJURIES OF WARFARE, by G. Gordon-Taylor, O.B.E., M.A., F.R.C.S., F.R.A.C.S.; 1939. Bristol: John Wright and Sons Limited. Medium 8vo, pp. 86, with illustrations. Price: 10s. 6d. net.

THE SINGLE HANDED MOTHER, by L. W. Batten, M.B., M.R.C.P., with a preface by H. G. Wells; 1939. London: George Allen and Unwin Limited. Crown 8vo, pp. 188. Price: 5s. net.

HUMAN HISTOLOGY: A GUIDE FOR MEDICAL STUDENTS, by E. R. A. Cooper, M.D., M.Sc., with a foreword by F. Wood Jones, F.R.S., F.R.C.S.; 1939. London: H. K. Lewis and Company Limited. Demy 8vo, pp. 428, with 237 illustrations. Price: 16s. net.

AN OUTLINE OF MEDICAL PSYCHOLOGY, by E. F. Skinner, M.A., M.D., F.R.C.P.; 1939. London: H. K. Lewis and Company Limited. Crown 8vo, pp. 182. Price: 6s. net.

POVERTY AMIDST PLENTY, by "Simon Seedy"; 1939. Geelong: L. G. De Garis. Demy 8vo, pp. 96. Price: 1s. 6d. net.

Diary for the Month.

DEC. 29.—Tasmanian Branch, B.M.A.: Council.
JAN. 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JAN. 9.—New South Wales Branch, B.M.A.: Council Quarterly.
JAN. 9.—Tasmanian Branch, B.M.A.: Branch.
JAN. 19.—Queensland Branch, B.M.A.: Council.
JAN. 24.—Victorian Branch, B.M.A.: Council.
JAN. 24.—Queensland Branch, B.M.A.: Council.
JAN. 26.—Tasmanian Branch, B.M.A.: Council.

Medical Appointments.

Dr. L. A. Wilson has been appointed Representative of the British Medical Association on the Nurses' Registration Board of South Australia.

* * *

Dr. E. M. Sheehan has been appointed a Medical Inspector of Schools in the Education Department of South Australia.

* * *

Dr. Elizabeth Laurie has been appointed a Medical Officer in the Office of the Director-General of Public Health of New South Wales.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xvi-xix.

CHILDREN'S HOSPITAL (INC.), PERTH, WESTERN AUSTRALIA: Junior Resident Medical Officers.

CHILDREN'S HOSPITAL, CARLTON, VICTORIA: Medical Officers.

ISLAND OF NAURU: Government Medical Officer.

MILDURA BASE HOSPITAL, MILDURA, VICTORIA: Medical Superintendent.

ROYAL MELBOURNE HOSPITAL, MELBOURNE, VICTORIA: Honorary Officers.

VICTORIAN EYE AND EAR HOSPITAL, VICTORIA: Resident Surgeons.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	Associated Medical Services Limited. All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Federated Mutual Medical Benefit Society. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. House, 235, Wickham Terrace, Brisbane, B.17.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 178, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 305, Saint George's Terrace, Perth.	Wiluna Hospital. All Contract Practice Appointments in Western Australia.

Editorial Notices.

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